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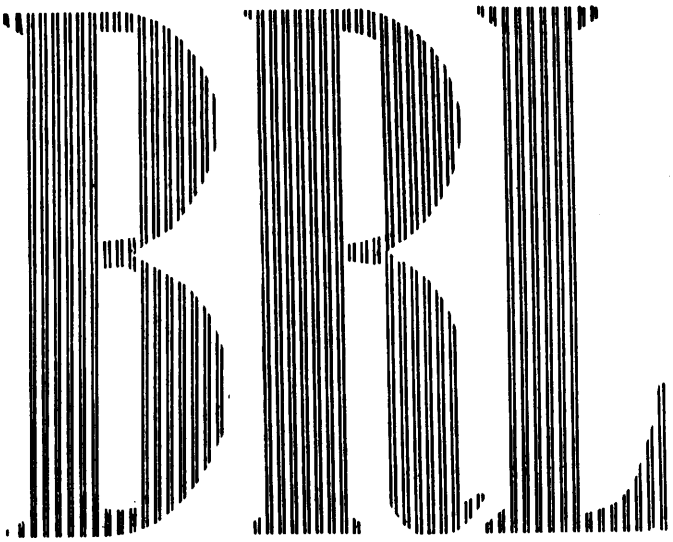

REPORT NO. 1204
JUNE 1963

NEUTRON REFLECTION AND FLUX VERSUS DEPTH FOR WATER

With an Appendix

COMPARISON WITH RESULTS OF NATIONAL BUREAU OF STANDARDS

Frank J. Allen
Arnold Futterer
William Wright

RDT & E Project No. 1A022601A088

BALLISTIC RESEARCH LABORATORIES

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A B E R D E E N P R O V I N G G R O U N D, M A R Y L A N D

FOREWORD

This is the fourth of a series of reports, each one of which presents calculated results for neutron reflection and flux versus depth for a single material. The first report, BRL Report No. 1189, gives the results for concrete. The second, BRL Report No. 1190, gives the results for Nevada Test Site Soil. The third, BRL Report No. 1199, gives the results for iron. The present report presents the calculated results for water. For each material eight incident energies: 0.1, 0.25, 0.50, 1.0, 2.0, 3.0, 5.0 and 14.0 MEV and four incident angles for each energy: 0, 30, 45 and 70° are considered.

In the appendix to the present report some comparisons are made with calculations performed by the National Bureau of Standards.

B A L L I S T I C R E S E A R C H L A B O R A T O R I E S

REPORT NO. 1204

FJAllen/AFutterer/WWright/bj
Aberdeen Proving Ground, Md.
June 1963

NEUTRON REFLECTION AND FLUX VERSUS DEPTH FOR WATER

With an Appendix

COMPARISON WITH RESULTS OF NATIONAL BUREAU OF STANDARDS

ABSTRACT

Detailed calculated results on neutron reflection and flux versus depth for water are given in the form of machine printouts. The angular and energy distributions of the reflected neutrons along with the energy-dependent and total flux at various depths are contained in tabular form on the printouts. Neutron number current, number flux and dose transmission as functions of thickness are also given in tabular form on the printouts.

A table of summary information on reflection is presented. This contains number current, number flux, dose and energy reflection factors as functions of incident energy and angle.

A few figures are presented to illustrate graphically the meaning of the various tabular results.

Some comparisons are made with results obtained by the National Bureau of Standards.

TABLE OF CONTENTS

INTRODUCTION

A systematic study of neutron transport in common materials is in progress at the Ballistic Research Laboratories. Primary emphasis has been placed upon the dose transmitted through various thicknesses of these materials when monoenergetic neutrons strike a laterally infinite slab, not necessarily homogeneous, at a fixed angle of incidence. The principal results are given in Reference 1.

The Monte Carlo machine program which calculates these results also calculates a multitude of other results such as number current, number flux, dose, and energy reflection and transmission; reflected and transmitted angular and energy distributions; and energy-dependent and total flux versus depth. Only a small fraction of this information has been reported previously in conjunction with the dose transmission results. A series of reports presenting this information is in preparation. The first three reports of the series, References 2, 3, 4 present the results for concrete, Nevada Test Site soil, and iron. The present report, the fourth in the series, gives similar results for water. The reason for tabular presentation of the detailed results is simply that a much larger number of pages would be required to display equivalent information graphically. The gross results for the reflection of neutrons from water are given in a single table discussed in the following section.

SUMMARY DATA ON REFLECTION

Table I gives the number current, number flux, energy, and dose reflection factors (albedos) for eight incident energies and four incident angles. "Flux" and "factor" are defined in the next section. The slab thickness for which the entries in Table I are calculated is generally 24 inches; in all cases, the thicknesses are sufficiently great so that the results differ imperceptibly from the corresponding results for slabs of infinite thickness. The high albedo values for 1 MEV incident neutrons are caused by the unusually large differential cross section for backward scatter which oxygen possesses at this energy.

A neutron cut-off energy of 10 electron volts was used for all of the calculations. Below this energy neutron trajectories were no longer followed in the machine program.

DESCRIPTION OF MACHINE PRINTOUTS

Two distinct types of machine printout are included in this report. For each incident neutron energy and angle, there are two printouts and these are placed side by side. We now describe the meaning of the information on the two types of printout, denoting them by Type 1 and Type 2. Although the actual printout sheets are not so labelled, no difficulty will be experienced in distinguishing between the two.

A. Description of Type 1 Printout

The problem calculated is defined by the fifth line of the machine printout, which gives the slab configuration, and the first two numbers of the fourth line, which give the neutron's incident energy (in MEV) and the cosine of the angle between the incident direction and the slab normal. The third number in the fourth line is the energy cut-off, that energy (in MEV) below which neutron trajectories are no longer traced in the Monte Carlo program. On the second line of the machine printout, the first two numbers are the run number, used for indexing purposes, and the number of neutron histories used in the Monte Carlo program. The fifth number in the second line is the number of mean free paths the incident neutron would have to traverse to emerge from the rear face of the slab without having suffered an interaction.

The third and fourth numbers on the second line designate the set of energy intervals and angular intervals, respectively, which are used in the calculation. A transmitted or reflected neutron emerges from the slab with a definite energy and direction; this precise information would be very difficult to utilize. Therefore, a set of energy and angular intervals are utilized and the emergent neutron is placed in the appropriate interval. Several energy "sets" have been used. The energy intervals, of which the various sets are composed, are shown in Table II. The sets are designed

to make full use of the ten energy intervals available in the machine program for all source energies. Thus the intervals used must vary with the source energy. The scheme devised was that of refining the remaining upper energy intervals when decrease of the source energy makes the highest energy interval in a given set devoid of neutrons. This method provides the most detailed spectral information at the highest available emergent neutron energies, that is, in the most important part of the spectrum. At the same time, the lower energy intervals are constant from set to set (the sets are ordered: 2, 2A,.... 2E), thus allowing intercomparison as the source energy is changed.

Tables IV and V and the diagram accompanying Table V show the angular intervals which have been used. Θ_1, Θ_2, ϕ_1, and ϕ_2 are the end points of the angular intervals shown in these tables. The Θ 2541 histogram has been used for normally incident neutrons, the $\Theta\phi$ histogram for slant incident neutrons.*

The seventh and eighth lines of the ORDVAC printout give the position in centimeters of internal interfaces which subdivide the slab into eight regions. They are used by the Monte Carlo transport code to provide a spatial breakdown of certain events which take place within the slab.

The remaining entries on the Type 1 machine printouts are explained with the aid of the following notation.

Let T_{ij} = fraction of neutrons transmitted into the i^{th} energy group and j^{th} angular sector.

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* "For some of the deep penetration calculations which employed a splitting technique in the basic Monte Carlo machine program, the Θ - 2541 histogram was used even with slant incident neutrons. This is because primary emphasis has been placed upon transmission results. For deep penetrations the transmitted neutrons, with the exception of those remaining near the source energy after scattering from a light nucleus, have "forgotten," i.e., have little correlation with the incident direction. In these cases the distribution of transmitted neutrons is almost independent of the azimuthal angle."

(In Run No. S-129, the $\Theta\phi$ histogram was accidentally used for a normal incidence calculation).

R_{ij} = fraction of neutrons reflected into the i^{th} energy group and j^{th} angular sector.

D_i = flux to dose conversion factor for i^{th} energy group (see Table II).

D_E = flux to dose conversion factor for source energy (see Table III).

Ω_j = number of steradians in j^{th} angular sector (see Tables IV and V).

θ = angle of incident neutrons with respect to slab normal.

$\overline{\text{Sec } \theta_j}$ = mean value of secant for neutrons in the j^{th} angular sector; actually the secant of the mean angle is used.

Subscripts i and j refer to the i^{th} energy group and j^{th} angular sector, respectively.

The flux-to-dose conversion factors in Tables II and III are based on Reference 5.

Then, F = incident flux per neutron = Sec θ

D = incident dose per neutron = D_E Sec θ.

The quantities in the table "Number of Scattered Neutrons vs. Energy" are then given by:

$$(\text{Number Transmission Factor})_i = \sum_{j=1}^{12} T_{ij} \qquad i = 1, 2, \ldots .10$$

$$(\text{Number Flux Transmission Factor})_i = \frac{1}{F} \sum_{j=1}^{12} T_{ij} \ \overline{\text{Sec } \theta_j} \qquad i = 1, 2, \ldots .10$$

$$(\text{Dose Transmission Factor})_i = \frac{D_i}{D} \sum_{j=1}^{12} T_{ij} \ \overline{\text{Sec } \theta_j} \qquad i = 1, 2, \ldots .10$$

The corresponding quantities for the reflected neutrons are obtained by replacing T_{ij} by R_{ij}.

The quantities in the table "Number of Scattered Neutrons vs. Angle" are given by:

$$(\text{Number Transmission Factor})_j = \sum_{i=1}^{10} T_{ij} \qquad j = 1, 2, \ldots .12$$

$$(\text{Number Transmission Factor/Steradian})_j = \frac{1}{\Omega_j} \sum_{i=1}^{10} T_{ij} \qquad j = 1, 2, \ldots .12$$

$$(\text{Dose Transmission Factor/Steradian})_j = \frac{\overline{\text{Sec } \Theta_j}}{D\ \Omega_j} \sum_{i=1}^{10} T_{ij}\, D_i \qquad j = 1, 2, \ldots .12$$

The corresponding quantities for the reflected neutrons are again obtained by replacing T_{ij} by R_{ij}.

The quantities listed on the two lines following the table "Number of Scattered Neutrons vs Angle" are all defined when the word "Factor" is defined. Wherever the word "Factor" is used, the operation of dividing the quantity in question by the corresponding incident quantity is implied.

The final two quantities listed are not fractions, but are the mean energy of the scattered transmitted neutrons and of the reflected neutrons.

Table VI is a list of abbreviations used on both the Type 1 and Type 2 machine printouts. It is believed that the abbreviations used will quickly become clear so that constant reference to the list will not be necessary.

Many of the Type 1 printouts in the present report contain little or no information on transmission. This is because the slab is thick and these runs were made before any statistical efficiency improving technique had been incorporated in the machine program.

In many cases, however, calculations for the same incident energies and angles were also performed after a "splitting" technique had been incorporated in the program. The calculations utilizing this device contain good information on neutron transmission.

The main machine printout contains detailed information on transmission for various depths within the slab. The Type 2 printout contains the most important part of this information.

B. Description of Type 2 Printout

The entries in the top three lines are identical to some of the entries previously defined for the Type 1 printout; they serve to identify the problem.

Fluxes and doses are defined as before. Note, however, that the word "factor" is not used on the Type 2 printout. All entries on this printout are given on a per incident neutron basis. That is, the phrase "per neutron" (or the abbreviation "per NT") on this printout means "per incident neutron."

The first two tables on this printout are the fluxes broken down into ten energy groups. The energy interval spanned by each group is given in Table II; the last entry in the second row of the printout specifies the relevant energy set in Table II.

The first table, "Scattered Flux per Neutron at Region Boundaries in Energy Groups," gives the energy-dependent fluxes due to scattered neutrons (uncollided excluded) at what are termed "region boundaries." The slab configuration through which the machine program traces neutron trajectories is divided into eight sub-slabs by means of seven interior interfaces. Each time a neutron crosses such an interface its contribution to the flux (in the energy interval appropriate for the crossing in question) is recorded. A neutron may cross an interior interface any number of times. Generally speaking, however, once a neutron gets more than a few inches from a given interface, it seldom recrosses that interface. Thus, for most of the interior interfaces the number of recrossings is approximately the same as would take place in the interior of a semi-infinite medium of the same material.

In the Type 2 printout all fluxes (and doses) calculated except those in the first row of entries of the first table "Scattered Flux per Neutron at Region Boundaries in Energy Groups" involve the secants of the actual angles at which the neutrons cross the various interfaces, except that for angles whose secant is greater than eight, the value eight is substituted for the secant. In the first row of entries of the first table, and in all cases on

the Type 1 printout, the fluxes and doses calculated are based on an average value of the secant for each of the angular regions into which neutrons are grouped. The Type 1 printout fluxes are usually about 3 or 4 percent higher than the Type 2, the value depending on the actual angular distribution. (This is apart from the difference between "Flux Transmission or Reflection Factor" and "Flux Transmitted or Reflected per incident neutron" in accordance with the previously given definitions of these terms). It is readily shown* that the fluxes calculated with the greatest value of the secant limited to eight are, on the average, six percent low for an isotropic distribution; the error is smaller for a distribution which is peaked forward (which is almost always the case for transmitted neutrons). Thus fluxes and doses listed on the Type 2 printouts average about 4 to 6 percent low, while those on the Type 1 printout average 1 or 2 percent low.

The second table, "Scattered Flux Transmitted per Neutron in Energy Groups Versus Thickness," again contains the energy-dependent fluxes, but this time only a neutron's first crossing of an interface is tallied. Thus, for example, the entries in the 3" row (left hand or index column reads 3") for a 24" thick slab constitute the energy-dependent fluxes which would be transmitted per incident neutron by a 3" thick slab - just as though the slab being treated in the machine program were only 3" thick. This method allows the calculation of eight problems simultaneously.

In the third or bottom table in the printout, the entries are not broken down by energy groups. The first four columns contain information similar to that in the immediately preceding paragraph: each row corresponds to a slab whose thickness is specified in the index column, the remaining thickness of the slab actually treated having no effect on the table entries. Each column in this table bears its own heading. The first column represents the number (we use this interchangeably with the term number current) transmitted per incident neutron, including the uncollided. The second and third columns are the flux and dose per incident neutron, again including the uncollided. The fourth column gives the uncollided contribution to the flux

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* The authors are indebted to Dr. M. Kalos, United Nuclear Corporation, for this demonstration.

per incident neutron.* The uncollided contribution to the number current is obtained from the entries in this column upon dividing by the secant of the incident angle; the uncollided contribution to the dose is obtained upon multiplication of the entries by the flux-to-dose conversion factor at the source energy from Table III. (The machine program interpolates in a table in obtaining source energy flux-to-dose conversion factors.)

The final column in the bottom table provides information analogous to that in the first table, i.e., the result of every crossing of an interface by each neutron is contained therein. The uncollided contribution is also included here. Thus, the second and fifth columns of the bottom table represent a total over all energy groups (plus the uncollided) of the flux due to neutrons' first crossings of the various interfaces, and due to all crossings of the interfaces, respectively. The difference represents the effect of crossings other than the first.

In the first and third tables of the Type 2 printout, the first row of entries corresponds to zero inches, i.e., the incident face, the machine suppressing the zero. Since the first table refers to scattered neutrons only, the first row entries in this table are due solely to reflected neutrons. The first four columns of the third table refer to transmitted neutrons, so reflected neutrons are not included at the incident face (first row entries). The entry in the first row of the final column of the bottom table represents the sum of the fluxes due to the incident neutrons and the reflected neutrons.

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* At each interface, the uncollided flux in this column is based on an integral number of neutrons (or zero). This does not affect any other entries on the printout. When splitting is used, uncollided as well as scattered neutrons are split upon crossing a splitting surface.

Each machine run is based on 1000 incident neutrons. However, for runs S-127 - S-130, the 1000 histories were traced in separate runs of 250 or 500 histories each; the results were summed to obtain an equivalent 1000 histories. The purpose in these instances was to get good "deep" penetration results without exceeding the mean free error time of the ORDVAC Computing machine.

DISCUSSION

The machine printouts are arranged in order of increasing energy; for each energy, they are arranged in order of increasing angle with respect to the slab normal. The incident energies (in MEV) for which results are given are: 0.1, 0.25, 0.5, 1.0, 2.0, 3.0, 5.0 and 14.0. The incident angles (degrees) are: 0, 30, 45 and 70. Following the thirty-two sets of printouts so arranged, there are some miscellaneous printouts. The latter were calculated after a "splitting" technique had been added to the basic Monte Carlo machine program. The flux distributions are reliable to much greater depths for the split runs (which require much more machine time) but the information on reflection is not significantly improved by splitting.

Figures 1-3 have been included to show graphically the meaning of some of the tabular results. Figure 1 is a reflected energy histogram illustrative of information contained on the Type 1 printout. The reflected energy distributions are seen to vary slowly with incident angle for a given incident energy, there being relatively more reflected neutrons near the source energy at the larger angles of incidence. Figure 2 is also obtained from a Type 1 printout and is typical of reflected angular distributions generally. For the normal incidence curve shown on Figure 2, there are twelve points whereas on the curves for slant incidence there are four points. Since for the case of normal incidence the reflected neutron distribution has no azimuthal dependence, the twelve available angular regions are all used to obtain the dependence of the reflected distribution upon the polar angle. For slant incident neutrons there is an azimuthal dependence; this has been suppressed in Figure 2 by integration over the azimuthal angle. This accounts for the greater dispersion of the plotted points for the normal incidence curve as compared with that of the slant incidence curves.

Figure 3 is obtained from the Type 2 printout. The shapes of the curves in Figure 3 are typical for flux versus depth plots for various materials, incident angles and incident energies. The curves for neutron energies near the source energy peak slightly sooner than those for lower energies since

fewer collisions are required for energies near the source energy.* Peaking occurs on the order of a mean free path inside the slab and the rate of decrease after the peak is very nearly the same for all neutron energies. This is in accord with the fact that a quasi-equilibrium neutron distribution becomes established after a penetration distance of a few mean free paths.** The two top curves in Figure 3 illustrate the difference between flux versus depth (slab thickness 24") and flux versus thickness in which case the slab thickness is equal to the value of the abscissa just as though the remainder of the 24" were not present. The difference between these two curves represents the increase in flux due to neutrons bouncing back and forth across a surface on the slab interior.

The total flux is always much better determined statistically than are the fluxes in the various energy groups. The fact that the rate of fall off after reaching the peak is about the same for all groups and for the total can be used in graphing the behavior of the flux in a particular energy group. Knowing the behavior of the energy-dependent fluxes enables one to calculate the volume distribution of any desired type of neutron interaction within a slab.

For certain problems which require detailed input information, it would be preferable to have the information in the form of analytical expressions fitted to the data since the handling of detailed information via tables is cumbersome, especially in hand computations. Many of the more important results conform to general patterns as depicted by the curves in the illustrative figures. Thus, one might expect a reasonable degree of success in fitting the results to analytical expressions. However, the tabular printouts contain a diversity of frequently useful information so that a

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* This is not as marked as was previously found to be the case for neutron penetration in concrete and soils. The difference is caused by the relatively greater fraction of hydrogen atoms in water as compared with the other materials.

** The bending down of the curves is negligible beyond a depth of a few inches. More pronounced bending down of the curves has been found for neutrons penetrating concrete and soils. The relatively higher hydrogen content in water causes quasi-equilibrium to be achieved more quickly since many neutrons are able to reach low energies with few collisions.

large number of fits would be required. Those likely to be the most generally useful are not obvious at present. Further, each prospective user must place his own demands on the accuracy with which the analytical expressions fit the data, and the range over which each fit is valid. Therefore, the authors feel that the tabular display of results chosen is the most appropriate form of presentation.

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FIG. 1 (U) NEUTRON REFLECTED ENERGY SPECTRUM (U)

SLAB MATERIAL — WATER
INCIDENT ENERGY = 3.0 MEV
THICKNESS = 24 INCHES
θ_o = ANGLE OF INCIDENCE
F = ARBITRARY NUMBER
BASED ON RUN NUMBERS 721, 722, 723, 724

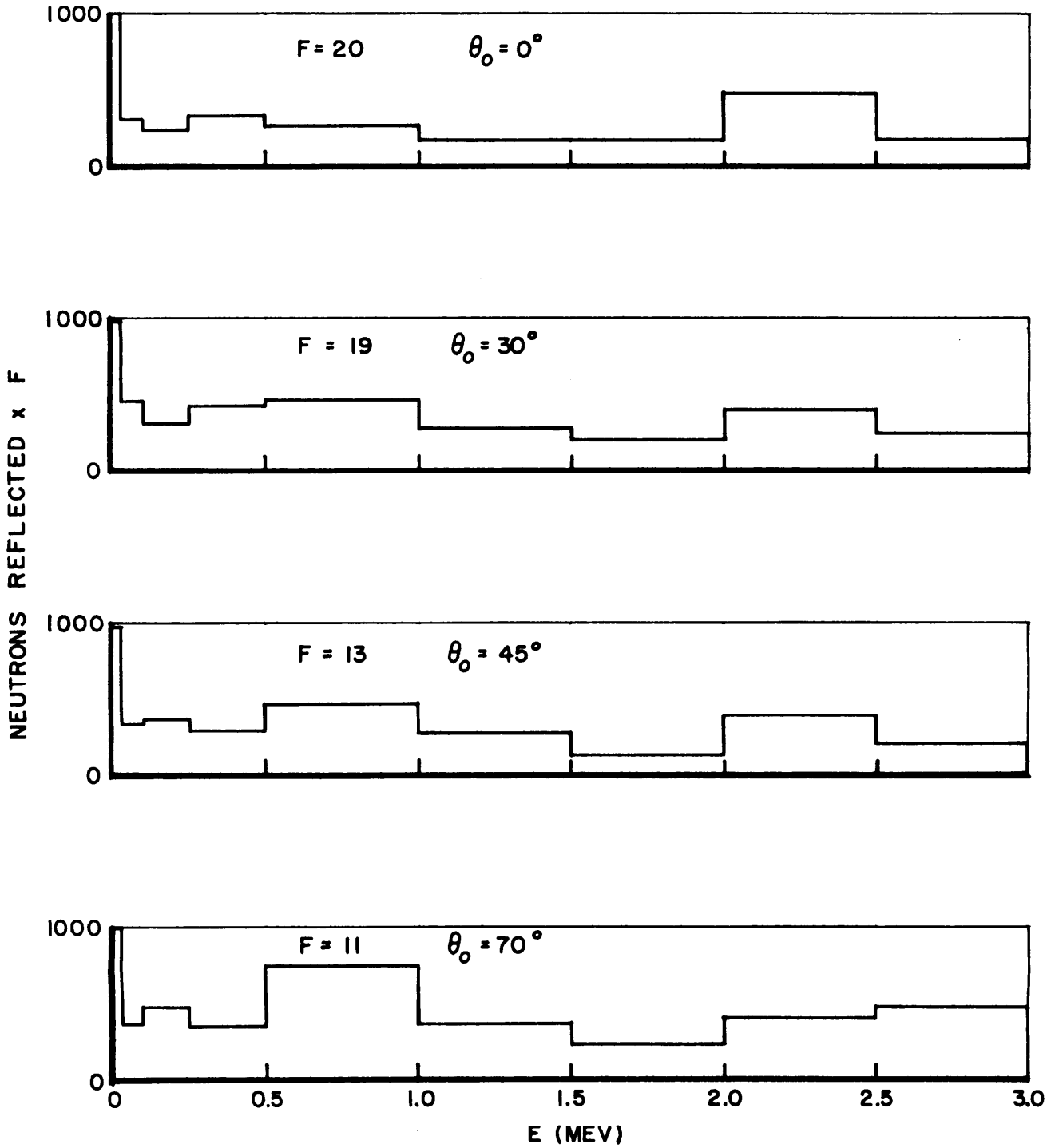


FIG. 2 (U) NEUTRON REFLECTED ANGULAR DISTRIBUTION (U)

SLAB CONFIGURATION - 24" WATER
INCIDENT ENERGY - 1.0 MEV
INCIDENT ANGLES:
⊙ - 0° ——————
● - 30° —— · ——
◊ - 45° —— · ——
♦ - 70° — — — —

BASED ON RUN NUMBERS 713, 714, 715, 716

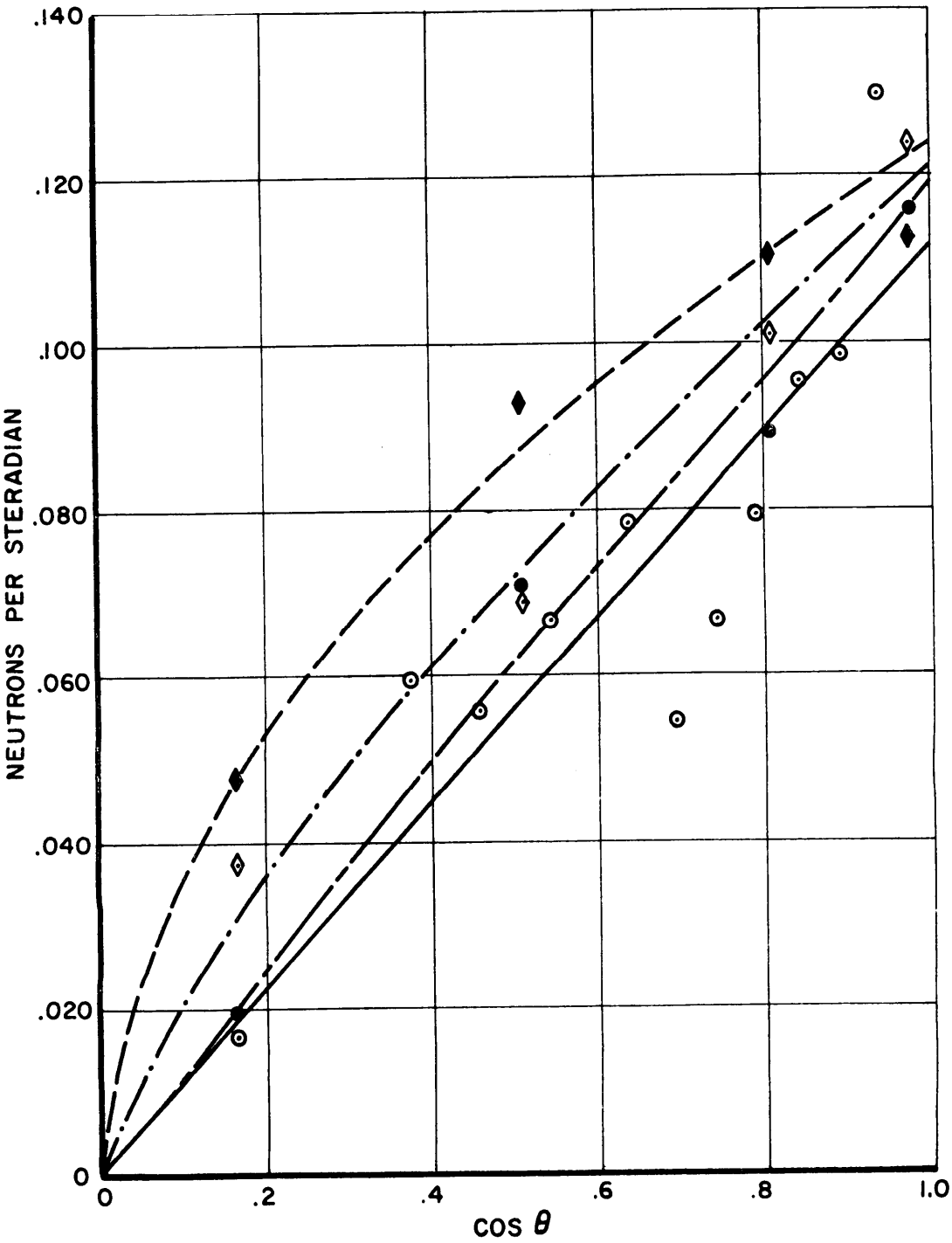


FIG. 3 (U) – ENERGY DEPENDENT AND TOTAL FLUX VS DEPTH AND TOTAL FLUX VS THICKNESS. (U)

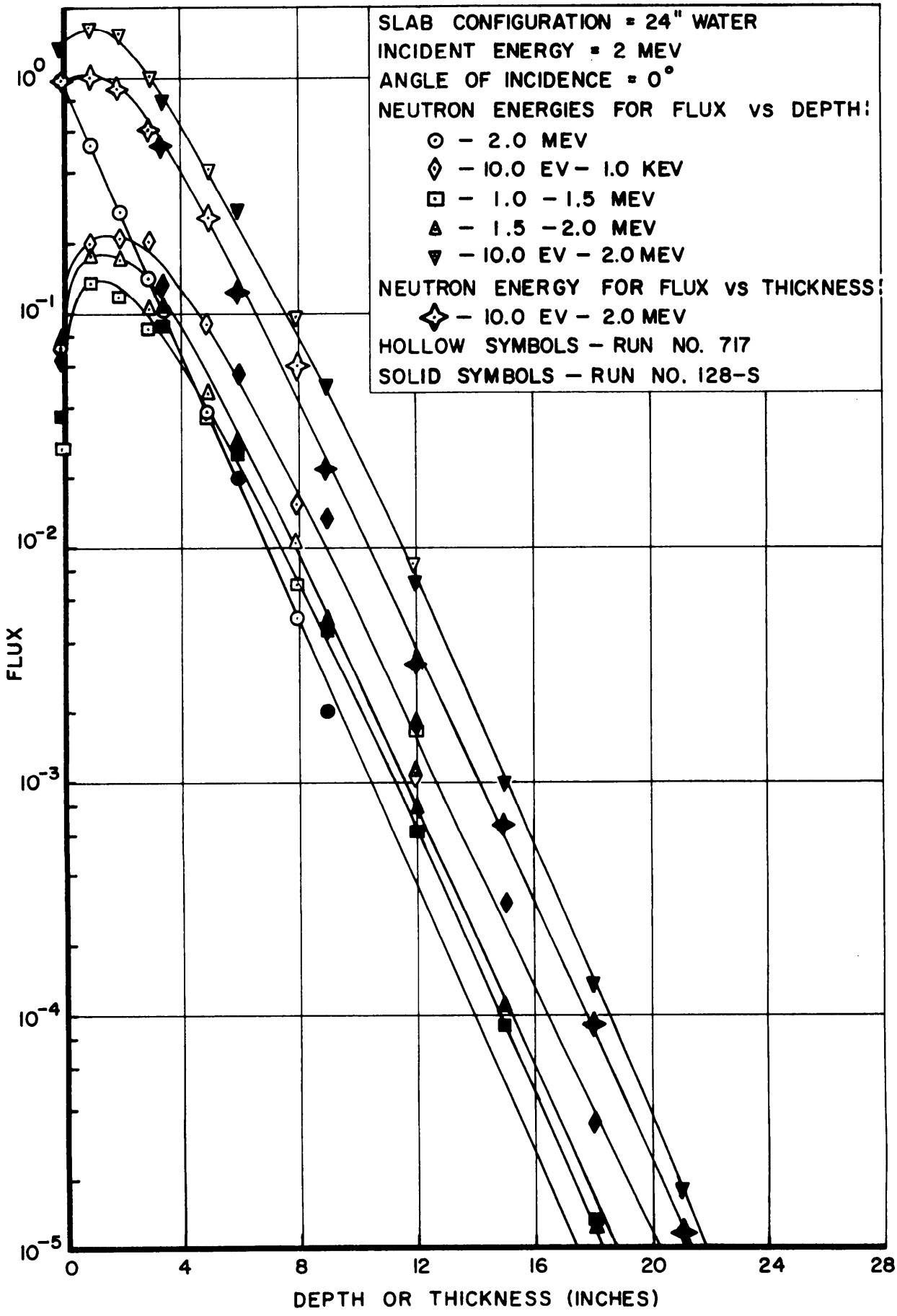


TABLE I

WATER REFLECTION DATA*

θ_o (DEG.)→ ↓ E_o (MEV)	NUMBER ALBEDO 0	30	45	70	NUMBER FLUX ALBEDO 0	30	45	70
0.1	.260	.284	.336	.511	.485	.491	.541	.400
0.25	.230	.278	.334	.480	.423	.446	.513	.365
0.50	.292	.334	.378	.521	.550	.581	.564	.406
1.0	.341	.378	.410	.542	.613	.651	.597	.436
2.0	.194	.214	.284	.447	.351	.360	.395	.363
3.0	.157	.188	.241	.397	.298	.310	.376	.312
5.0	.130	.160	.206	.360	.232	.266	.293	.284
14.0	.0946	.118	.173	.313	.183	.224	.263	.265
	ENERGY ALBEDO				DOSE ALBEDO			
0.1	.0324	.0409	.0471	.106	.291	.296	.321	.247
0.25	.0272	.0374	.0506	.114	.181	.197	.229	.190
0.50	.0789	.0848	.110	.206	.261	.283	.292	.244
1.0	.133	.134	.147	.208	.310	.322	.296	.244
2.0	.0564	.0594	.0794	.143	.178	.188	.204	.228
3.0	.0416	.0444	.0607	.120	.142	.154	.196	.188
5.0	.0376	.0466	.0540	.106	.110	.134	.145	.164
14.0	.0215	.0240	.0370	.0945	.104	.126	.151	.187

* Some of the entries in this table are averages of the machine run results in this report along with results from additional runs; this improves the statistical accuracy. The differences between the numbers here and those representing runs in this report are never more than a few percent.

TABLE II

ENERGY SETS AND FLUX TO DOSE CONVERSION FACTORS

ENERGY GROUP	SET 2		SET 2A		SET 2B	
	Energy Interval (MEV)	Conversion Factor (Rads/Unit Flux)	Energy Interval (MEV)	Conversion Factor (Rads/Unit Flux)	Energy Interval (MEV)	Conversion Factor (Rads/Unit Flux)
1	.00001-.001	$.64 \times 10^{-9}$	.00001-.001	$.64 \times 10^{-9}$	.00001-.001	$.64 \times 10^{-9}$
2	.001-.025	.59	.001-.025	.59	.001-.025	.59
3	.025-.1	.81	.025-.1	.81	.025-.1	.81
4	.1-.25	1.3	.1-.25	1.3	.1-.25	1.3
5	.25-.5	2.0	.25-.5	2.0	.25-.5	2.0
6	.5-1.0	3.1	.5-1.0	3.1	.5-1.0	3.1
7	1.0-2.0	4.0	1.0-2.0	4.0	1.0-1.5	3.9
8	2.0-3.0	4.3	2.0-3.0	4.3	1.5-2.0	4.1
9	3.0-5.0	5.1	3.0-4.0	4.7	2.0-2.5	4.2
10	5.0-16.0	6.8	4.0-5.0	5.5	2.5-3.0	4.4

ENERGY GROUP	SET 2C		SET 2D		SET 2E	
	Energy Interval (MEV)	Conversion Factor (Rads/Unit Flux	Energy Interval (MEV)	Conversion Factor (Rads/Unit Flux)	Energy Interval (MEV)	Conversion Factor (Rads/Unit Flux)
1	.00001-.001	$.64 \times 10^{-9}$	.00001-.001	$.64 \times 10^{-9}$	.00001-.0005	$.65 \times 10^{-9}$
2	.001-.025	.59	.001-.-25	.59	.0005-.001	.62
3	.025-.1	.81	.025-.0625	.71	.001-.013	.59
4	.1-.25	1.3	.0625-.1	.91	.013-.025	.59
5	.25-.375	1.8	.1-.175	1.2	.025-.0625	.71
6	.375-.5	2.2	.175-.25	1.4	.0625-.1	.91
7	.5-.75	2.8	.25-.375	1.8	.1-.175	1.2
8	.75-1.0	3.4	.375-.5	2.2	.175-.25	1.4
9	1.0-1.5	3.9	.5-.75	2.8	.25-.375	1.8
10	1.5-2.0	4.1	.75-1.0	3.4	.375-.5	2.2

TABLE III

FLUX TO DOSE CONVERSION FACTORS FOR SOURCE ENERGIES

E_o (MEV)	Conversion Factor (D_E) (Rads. per unit flux)
.1	1.1×10^{-9}
.25	1.7
.5	2.4
1.0	3.8
2.0	4.1
2.67	4.4
3.0	4.6
4.0	5.1
5.0	5.8
7.0	6.8
10.0	7.0
14.1	7.0*

* Extrapolated

TABLE IV

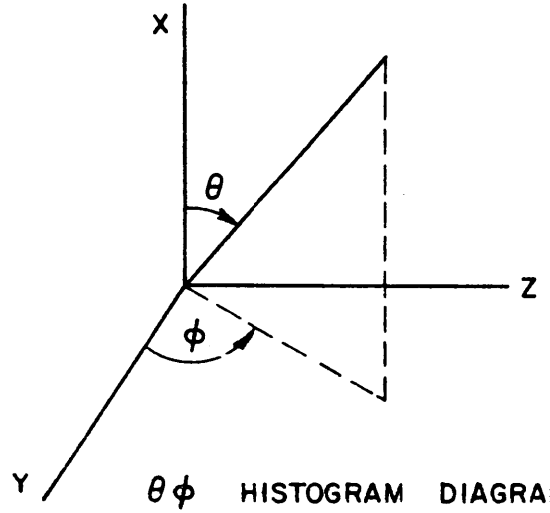
HISTOGRAM θ 2541

Sector	Cos θ_1	Cos θ_2	θ_1	θ_2	$\bar{\theta}$	Sec $\bar{\theta}$	Solid Angle
1	1.00000	.95833	0	16°35.9'	8°18'	1.0106	.26180
2	.95833	.91667	16°35.9'	23°33.4'	20° 5'	1.0647	.26180
3	.91667	.86667	23°33.4'	29°55.6'	26°45'	1.1198	.31416
4	.86667	.81667	29°55.6'	35°14.8'	32°35'	1.1868	.31416
5	.81667	.76667	35°14.8'	39°56.7'	37°36'	1.2622	.31416
6	.76667	.71667	39°56.7'	44°13.2'	42° 5'	1.3474	.31416
7	.71667	.66667	44°13.2'	48°11.4'	46°12'	1.4448	.31416
8	.66667	.58333	48°11.4'	54°18.9'	51°15'	1.5976	.52360
9	.58333	.50000	54°18.9'	60° 0'	57° 9'	1.8435	.52360
10	.50000	.41667	60° 0'	65°22.5'	62°41'	2.1791	.52360
11	.41667	.33333	65°22.5'	70°31.7'	67°57'	2.6637	.52360
12	.33333	.00000	70°31.7'	90°	80°16'	5.9150	2.09440

TABLE V

HISTOGRAM θ ϕ

Sector	Cos θ_1	Cos θ_2	θ_1	θ_2	$\bar{\theta}$	Sec $\bar{\theta}$	Solid Angle	$\lvert\phi_1\rvert$	$\lvert\phi_2\rvert$
1	1.0	11/12	0	$23^\circ 33.4'$	$11^\circ 47'$	1.0215	$\pi/6$	0	π
2	11/12	2/3	$23^\circ 33.4'$	$48^\circ 11.4'$	$35^\circ 52'$	1.2340	$\pi/6$	$2\pi/3$	π
3	11/12	2/3	$23^\circ 33.4'$	$48^\circ 11.4'$	$35^\circ 52'$	1.2340	$\pi/6$	$\pi/3$	$2\pi/3$
4	11/12	2/3	$23^\circ 33.4'$	$48^\circ 11.4'$	$35^\circ 52'$	1.2340	$\pi/6$	0	$\pi/3$
5	2/3	1/3	$48^\circ 11.4'$	$70^\circ 31.7'$	$59^\circ 22'$	1.9625	$\pi/6$	$3\pi/4$	π
6	2/3	1/3	$48^\circ 11.4'$	$70^\circ 31.7'$	$59^\circ 22'$	1.9625	$\pi/6$	$\pi/2$	$3\pi/4$
7	2/3	1/3	$48^\circ 11.4'$	$70^\circ 31.7'$	$59^\circ 22'$	1.9625	$\pi/6$	$\pi/4$	$\pi/2$
8	2/3	1/3	$48^\circ 11.4'$	$70^\circ 31.7'$	$59^\circ 22'$	1.9625	$\pi/6$	0	$\pi/4$
9	1/3	0	$70^\circ 31.7'$	90°	$80^\circ 16'$	5.9150	$\pi/6$	$3\pi/4$	π
10	1/3	0	$70^\circ 31.7'$	90°	$80^\circ 16'$	5.9150	$\pi/6$	$\pi/2$	$3\pi/4$
11	1/3	0	$70^\circ 31.7'$	90°	$80^\circ 16'$	5.9150	$\pi/6$	$\pi/4$	$\pi/2$
12	1/3	0	$70^\circ 31.7'$	90°	$80^\circ 16'$	5.9150	$\pi/6$	0	$\pi/4$



$\theta\phi$ HISTOGRAM DIAGRAM

TABLE VI

ABBREVIATIONS USED ON MACHINE PRINTOUTS

MFP.	Mean Free Path
INC.	Incident
COS.	Cosine
EGY.	Energy
FLX.	Flux
NT.	Neutron
DSE.	Dose
NO.	Number
TRAN, TRANS	Transmission
REFL.	Reflection
FACT.	Factor
B-POLY.	Polytehylene borated with 8% boron carbide by weight
STER.	Steradian
S, SCAT.	Scattered
U, UNC., UNSCAT.	Unscattered
ABS.	Absorption
GRPS.	Groups
TTL.	Total
BDS.	Boundaries

APPENDIX

COMPARISON WITH RESULTS OF NATIONAL BUREAU OF STANDARDS

In the previous reports in this series, References 2-4, no comparisons were made with the work of others because the authors knew of no work with which quantitative comparisons could be made. In the present case, the National Bureau of Standards has performed calculations with which some comparisons can be made. (See Reference 6). In what follows number and energy albedos along with reflected neutron angular and spectral distributions will be compared.

Table IA shows the NBS and BRL number and energy albedos. The NBS calculations utilized a cutoff energy of 0.5 electron volts whereas the BRL calculations assumed a 10 ev. cutoff. Therefore to make the calculated number albedos comparable, an allowance must be made for this difference. We have assumed that the reflected spectral distribution behaves as 1/E in the range 0.5 ev. $< E <$ 0.1 MEV. Figures A1 - A4 show that this is a reasonably good assumption at least in the range 10 ev. $< E <$ 0.1 MEV. At any rate with this assumption, modified albedos have been calculated to correspond to a 0.5 ev. cutoff. Comparison of these with the NBS results are reasonably good, the modified BRL number albedos being generally a few per cent higher than the NBS values.

A little later it will be shown that the 1/E spectral behavior is in agreement with that predicted by neutron slowing down theory. This behavior is expected to hold reasonably well in the energy region from 0.5 ev. to 10 ev. as well as in the region from 10 ev. to 0.1 MEV since 0.5 ev. is still well above thermal energy and since the absorption cross section is very low over this entire region. However, neutron slowing down theory results are applicable to an infinite medium whereas concern here centers upon the neutrons escaping from the medium. Below a few electron volts the hydrogen cross section gradually increases, being about 10% greater at 0.5 ev. than at 10 ev. This means that the ratio of neutrons which reflect to those present is smaller for neutrons in the vicinity of 0.5 ev. than for neutrons in the vicinity of 10 ev. Therefore the 1/E spectral assumption results in a correction for the difference in cutoff energies which is somewhat too large. This effect is

TABLE IA

COMPARISON OF NBS AND BRL NUMBER AND ENERGY ALBEDOS

Incident Energy E_o (MEV)	Incident Angle θ_o (DEG)	BRL Number Albedo (Cutoff Energy of 10.0 ev.)	BRL** Number Albedo Modified so as to simulate 0.5 ev. cutoff)	NBS* Number Albedo Cutoff Energy of 0.5 ev.)	BRL Energy Albedo	NBS Energy Albedo
1	0	.341	.383	.376	.133	.142
	30***	.378	.431	.41	.134	.15
	45	.410	.465	.450	.147	.159
	70***	.542	.605	.58	.208	.21
3	0	.157	.180	.166	.0416	.043
	30***	.188	.213	.19	.0444	.047
	45	.241	.274	.232	.0607	.052
	70***	.397	.434	.40	.120	.11

* In the normal incidence cases, NBS made more than one applicable machine calculation; in these instances the NBS calculations have been averaged. See P. 119, Reference 6.

** In calculating the number of neutrons which would have been reflected between 0.5 ev. and 10.0 ev. had the BRL cutoff energy been set at 0.5 ev., a 1/E spectral distribution is assumed. See Figures A1 through A4; note that these are log-log plots. Small departures from this assumed behavior can significantly affect the results. See accompanying discussion. The effect on the reflected energy is negligible.

*** NBS results for 30° and 70° incident angles interpolated from Figure 9 P. 125, Reference 6.

greater for 3 MEV incident neutrons than for 1 MEV incident neutrons because the low energy flux peaks a little deeper in the slab. This accentuates the effect of the higher cross sections in the vicinity of 0.5 electron volts since escaping (reflecting) neutrons for the 3 MEV case on the average suffer their last collision prior to escape deeper in the slab. The authors know no better way to allow for the differing cutoff energies used.

The results in Table IA are in accord with this discussion. The modified BRL number albedos are a few percent higher than the NBS number albedos, the differences being greater for 3 MEV than for 1 MEV incident neutrons. The discussion also accounts for the difference in the ratio of the number to energy albedos calculated by the two groups. (Later it will be shown that the reflected spectral distributions are in agreement; the differing cutoffs do not affect this comparison.)

The comparisons for 30° and 70° angles of incidence were made by interpolating in Figure 9 of Reference 6. NBS did not calculate these cases.

The NBS and BRL energy albedos shown in Table IA are also within several percent of each other. These values are affected to a negligible degree by the differing cutoff energies. Again the NBS results for the 30° and 70° incidence cases were obtained by interpolation in Figure 9 of Reference 6.

Figures A1 - A4 show the reflected neutron spectral distributions for the four cases treated by both NBS and BRL. To obtain these plots, the number of neutrons reflected in each energy interval was divided by the energy range spanned by that interval to obtain the ordinate for that interval; for the solid curves, the corresponding abscissa was taken to be the center point of the energy interval. (The dashed curves will be explained later). There was one exception to this procedure. In the case of the highest energy reflected neutrons, only a part of the energy interval used in each of the machine programs actually contains the reflected neutrons in that interval. For example, in the case of 1 MEV neutrons incident normally on water, the highest energy a reflected neutron can have after a single collision* is 0.883 MEV. This corresponds to a 90° scattering collision with an oxygen nucleus. Thus the top energy interval in the

*See footnote on next page.

BRL calculation which spans the region 0.75 MEV < E < 1 MEV actually contains neutrons only in the region 0.75 MEV < E < 0.883 MEV. The top NBS energy group spanning the region 0.9 MEV < E < 1.0 MEV is devoid of neutrons* while the second group spanning the region 0.8 MEV < E < 0.9 MEV actually contains neutrons only in the range 0.8 MEV < E < 0.883 MEV. Only the part of a region which actually contains the reflected neutrons was used in obtaining the ordinates for the curves in Figures A1 - A4.

In drawing smooth curves through the points the lowest energy NBS point was ignored as it spans too wide an energy region (about 5 decades) on the log-log plots. The agreement between the NBS and BRL calculated reflected neutron spectral distributions is seen to be very good. Note that there are only a few hundred reflected neutrons, and these are divided (unequally) among ten energy intervals so that the statistical accuracies of the individual plotted points are not high.

The low energy part of each of the spectral curves shows a 1/E behavior. This is to be expected in the energy region well below the source energy provided the ratio of the scattering cross sections of the elements involved is a constant. See Reference 7, especially pages 137-160, and Reference 8, pages 217-234; for a more rigorous but very complicated proof of this statement, see Reference 9. Between 0.5 ev. and 0.01 MEV the cross sections for hydrogen and oxygen are almost constant. Between 0.01 MEV and 0.1 MEV, the hydrogen cross section drops off somewhat more than the oxygen cross section. That the reflected neutron spectral distribution behaves approximately as 1/E below about 0.1 MEV is thus seen to be in agreement with neutron slowing down theory. This behavior has also been observed from calculated results for neutrons transmitted through polyethylene. (See Reference 10.)

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* A neutron may undergo two (or more) collisions which keep the neutron path almost planar and which altogether accomplish a rotation of sufficient magnitude so that the neutron reflects from the medium. It is then possible that the reflected neutron will have more than the maximum energy allowed in a single collision reflection. However, this is a rare event. Perusal of all the tables for normal incidence cases in the NBS work (Reference 6) turns up only one case, Table 2a, in which a single neutron reflected with a greater energy than that allowed for a single 90° scattering collision with oxygen. At higher energies where the scattering is more markedly peaked forward, and at larger angles of incidence, such events would be less rare, but for present purposes the procedure outlined for handling the high energy reflected neutron is entirely adequate.

The sets of energy intervals that were used in the BRL calculations are shown in Table II. Sets 2D and 2B were used for the 1 MEV and 3 MEV incidence cases, respectively. The lowest energy intervals are very wide, that is, the ratio of the upper bound to the lower bound in each of these intervals is large. One may wonder then whether the curves correctly represent the spectral behavior when the center points of the energy intervals are taken as the abscissas for the plotted points. As an alternative, suppose the true behavior in the low energy region to be $N(E) = A/E$ where $N(E)$ is the number of neutrons per MEV and A is a constant. Now the total number of neutrons in an interval bounded by energies E_1 and E_2 is $\int_{E_1}^{E_2} N(E)dE$. Now define an energy E_m by:

$$N(E_m) = \frac{A}{E_m} \equiv \frac{1}{E_2 - E_1} \int_{E_1}^{E_2} N(E)dE.$$

Then if E_m is used as the abscissa for the energy interval (E_1, E_2) while the ordinate is, as before, the total number of neutrons in the interval divided by $(E_2 - E_1)$, the curve will be correct provided the assumption that $N(E) = A/E$ is correct. The dashed curves in Figures A1-A4 have been obtained in this manner. The value of the abscissa E_m for an interval (E_1, E_2) follows immediately from the previous equation:

$$E_m = \frac{E_2 - E_1}{\ln E_2/E_1} .$$

If we take $R = E_2/E_1$, then $E_m = \frac{R-1}{\ln R} E_1$, whereas the center point of the interval, E_c, is given by

$$E_c = \frac{R+1}{2} E_1.$$

Unless R is "large", E_m and E_c do not differ greatly. The two differ significantly only for the lowest two or three energy intervals. Accordingly, the solid and dashed curves merge at the upper end of the 1/E region.

It may be seen that the slopes of the dashed curves and the solid curves in Figures A1-A4 are close to one another and also close to 1/E in the low energy region. (The slopes of the solid curves depend to some extent upon the particular energy intervals used.) However, the dashed curves are correct:

they have the correct area under them, i.e., the correct number of reflected neutrons in each energy interval, and they have approximately a 1/E behavior which is consistent with the calculated results and with the manner of determining the dashed curves. The solid curves, though correctly indicating a 1/E behavior, do not have the correct areas under them in the low energy region due to the (necessarily) large energy intervals employed. The only reason that the slopes of the dashed curves are not exactly 1/E (since we have made the 1/E assumption in finding appropriate abscissas) is that the calculated results which determine the ordinates of the curves do not agree exactly with a 1/E behavior for any individual case.

The lowest energy NBS point has been plotted on the dashed curves. It is seen to be near to the curves as drawn, even though the corresponding energy interval spans 5 decades.

Figures A5 and A6 show the reflected neutron angular distributions for the four cases treated by both NBS and BRL. There are 10 polar angular intervals in the NBS work. In the BRL calculations, 12 angular intervals are used; for normal incidence cases all of these are used to represent the dependence of the reflected neutrons on the polar angle while for slant incidence cases both the azimuthal and polar angle dependence are represented. In Figures A5 and A6, the dependence on the azimuthal angle for the 45° incidence cases has been suppressed by summing over the azimuthal intervals in each polar angle interval.

Due to ORDVAC fast memory limitations the BRL machine program uses a rather coarse representation of the differential elastic cross sections. For each energy at which differential cross section information is stored in the machine, the probabilities that a neutron will be scattered into each of six intervals of the cosine of the scattering angle are the quantities actually stored. The intervals are chosen so as to give a good representation of small angle scattering; this is because at high energies for most elements the scattering is peaked forward so that to get good neutron transmission results emphasis must be placed upon the small angle scattering.* Within each of the six allowed

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* The part of the reflection results due to multiply scattered neutrons is also improved in this way. Except at very oblique incidence angles the majority (70-85%) of the reflected neutrons are multiply scattered according to the NBS results.

intervals, the differential cross section is taken to be constant and equal to its average value for that interval. This coupled with the fact that the differential cross section increases in the backward hemisphere as one approaches a scattering angle of 180° results in a low estimate of the single scatter reflected neutrons near the (outward) direction of the slab normal for normally incident neutrons. This statement also holds over a considerable range of incidence angles including the slab normal direction. The result is more pronounced for 1 MEV than for 3 MEV incident neutrons as can be seen by examining the differential cross section curves for oxygen. (See Figure 3 of Reference 6). At 1 MEV, the cross section for backward scatter is unusually large being about as great as that for forward scatter.

Thus, the BRL angular distributions are expected to be a little low near the slab normal direction. For the 1 MEV, 0° incidence case, twelve polar angular intervals were used. Only about 30% of the reflected neutrons arise as a result of single collisions. Hence the scatter of the points is wide (the curve is based on only a few hundred neutrons distributed over the twelve intervals) so that the result is not marked. For the remaining cases, the BRL curves are based on four angular intervals.** In each of these cases the BRL point nearest the normal on Figures A5 and A6 is noticeably low.

It can be seen then that the NBS and BRL angular distributions are in very good agreement, the statistical fluctuations being no more than what would be expected. The only discrepancy occurs near the normal direction where the BRL results are a little low due to a coarse representation of the differential elastic cross section.

We note in passing that the plotted points in Figures A5 and A6 can in fair approximation be represented by straight lines. (See also Figure 2). This approximation has been found to be quite good for several materials except at very oblique angles of incidence. Use is being made of this in computing dose increases resulting from internal reflections in 4π shielded compartments. It

** In the 3 MEV normal incidence case the wrong histogram card was accidentally used in the machine deck so that only four polar angular intervals were used.

can be shown that for this (cosine law) reflected angular distribution, the radiation field of the reflected neutrons in a 4π shielded compartment (cavity) is homogeneous, isotropic, independent of compartment shape, and proportional to the surface intensity. An obvious further approximation makes use of a mean intensity when the actual surface intensity is not uniform.

To sum up the NBS and BRL calculations are in agreement with respect to all of the results capable of comparison: the number and energy albedos; the reflected neutron spectral distributions; the reflected angular distributions are all in good agreement. Sources of difference not discussed so far are the detailed cross sections, other than differential elastic, and the slab thickness. The slab thickness makes a negligible difference as long as it is greater than a few inches. See Figure 14 of Reference 6, which shows the dependence of number and energy albedo on thickness for neutrons normally incident on water with an energy of 3 MEV. See also Figures 9-16 of Reference 11. These figures give the BRL calculated number albedo versus thickness for neutrons incident at various angles and energies upon slabs of polyethylene. The curves are very similar to that obtained by the National Bureau of Standards for water.

For the 1 MEV and 3 MEV incidence cases, differences in the cross sections used by NBS and BRL, other than the differential elastic cross sections, are negligible. However, for 14 MEV incidence meaningful comparison can not be made because of cross section differences. NBS made several different assumptions regarding inelastic scattering at 14 MEV, no one of which corresponds closely to the assumption made in the BRL studies. The latter assume a nuclear temperature model for neutrons above 10 MEV undergoing inelastic scattering with oxygen. Below 10 MEV a single level is assumed to be excited. (Actually a weighted average of several levels was used, the value that the computing machine used being 6.3 MEV). The "nuclear temperature" for oxygen is taken to be $0.469\ E^{1/2}$ based on information contained in Reference 12; E is the energy before collision (MEV). The inelastically scattered neutrons are distributed according to

$$N(E', E)\ dE' = \frac{E'}{T^2}\ \exp\ (-E'/T)\ dE' \ .$$

For a 14 MEV neutron undergoing an inelastic scattering, the "temperature" is then 1.75 MEV. The mean energy of the inelastically scattered neutrons is 2T, or 3.5 MEV. This is considerably lower than that which results when a 14 MEV neutron is inelastically scattered via excitation of the 6.1 MEV level (regardless of the angle of scattering).

With the treatment of inelastic scattering just discussed, the values obtained for the number and energy albedos for normally incident 14 MEV neutrons are 0.0946 and 0.0215 respectively. The number albedos given by NBS (Table 6.1, Reference 6) vary from 0.064 to 0.165 for the various assumptions made, a value of 0.124 corresponding to the one of their assumptions considered most realistic by the National Bureau of Standards. The energy albedos varied from 0.023 to 0.079, a value of 0.040 being considered the most realistic.

The assumptions made concerning inelastic scattering are certainly important when the inelastic cross sections are large; for oxygen the inelastic cross section is approximately one-third of the total cross section for 14 MEV neutrons. A nuclear temperature model leads to a considerably lower energy albedo and a somewhat lower number albedo than does a model which neglects excitation of the higher energy levels. In using a nuclear temperature model, the higher levels are taken into account. However, there is not presently sufficient data for accurate representation of the inelastic processes. The results for 14 MEV incident neutrons must be regarded as being less accurate than the results for the lower energies.

FIG. A1 (U) - NEUTRON REFLECTED ENERGY SPECTRUM. (U)

SLAB MATERIAL – WATER
INCIDENT ENERGY - 1 MEV
INCIDENT ANGLE - 0°

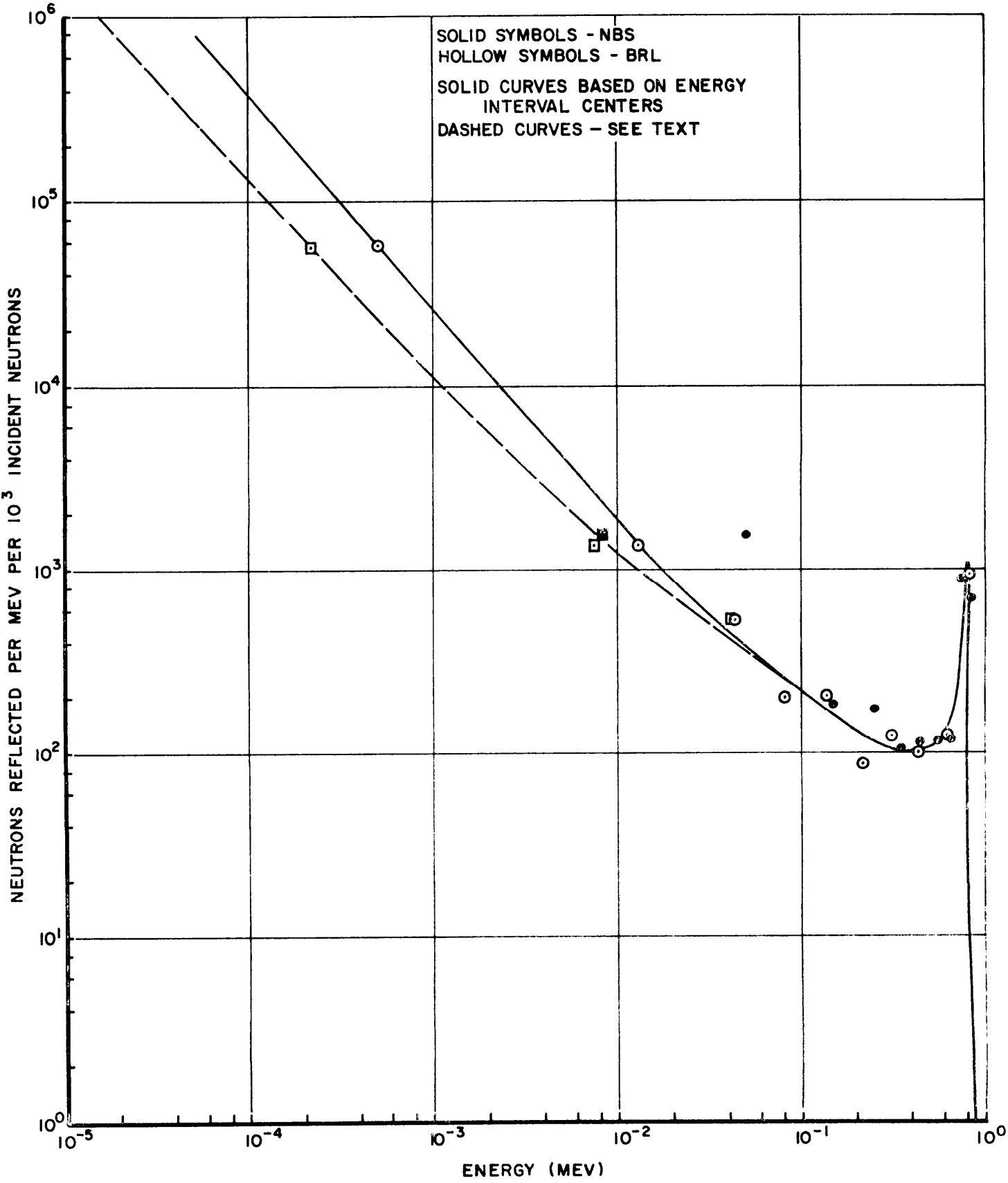


FIG. A2 (U) - NEUTRON REFLECTED ENERGY SPECTRUM. (U)

SLAB MATERIAL - WATER
INCIDENT ENERGY - 1 MEV
INCIDENT ANGLE - 45°

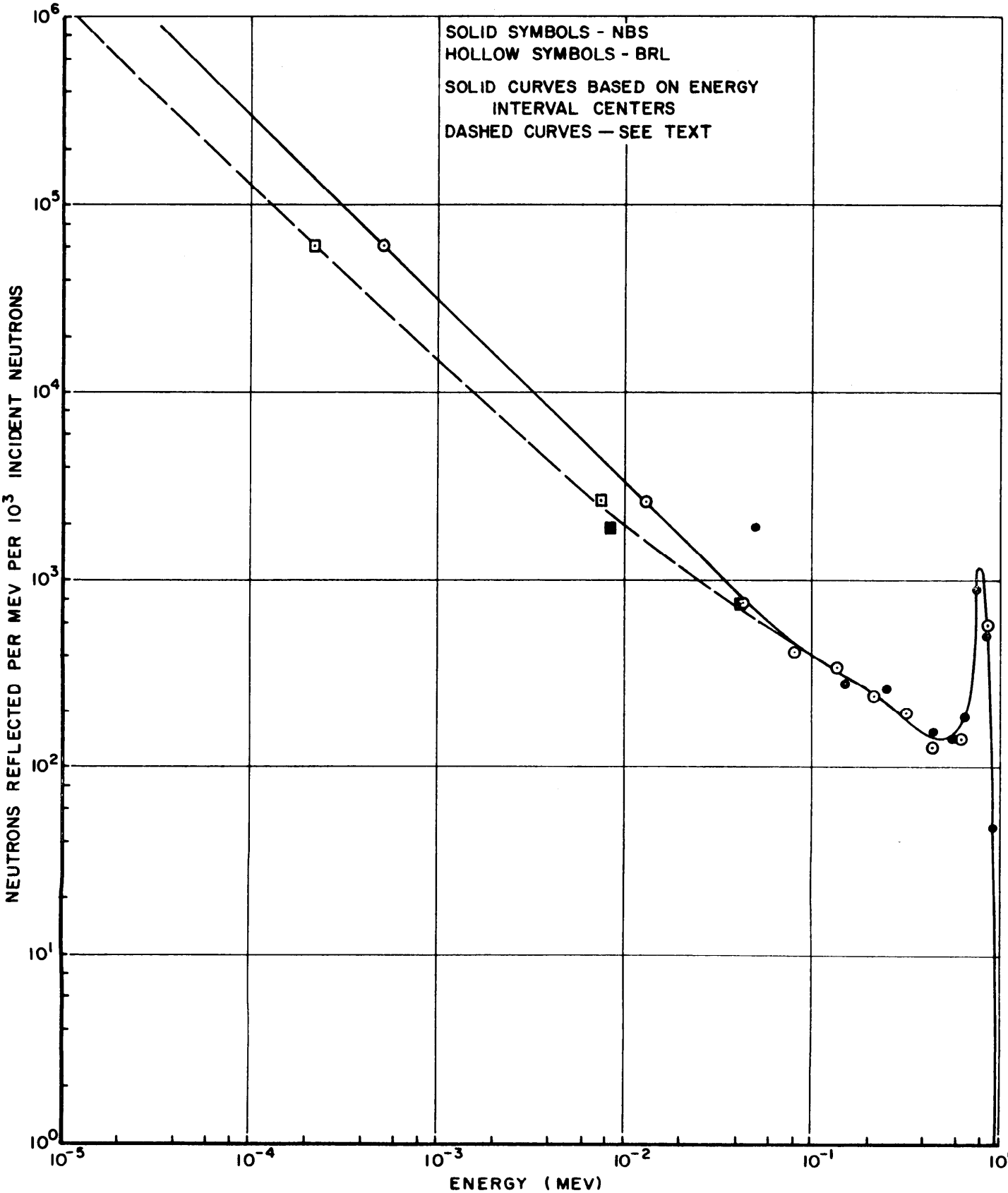


FIG. A3 (U) - NEUTRON REFLECTED ENERGY SPECTRUM. (U)

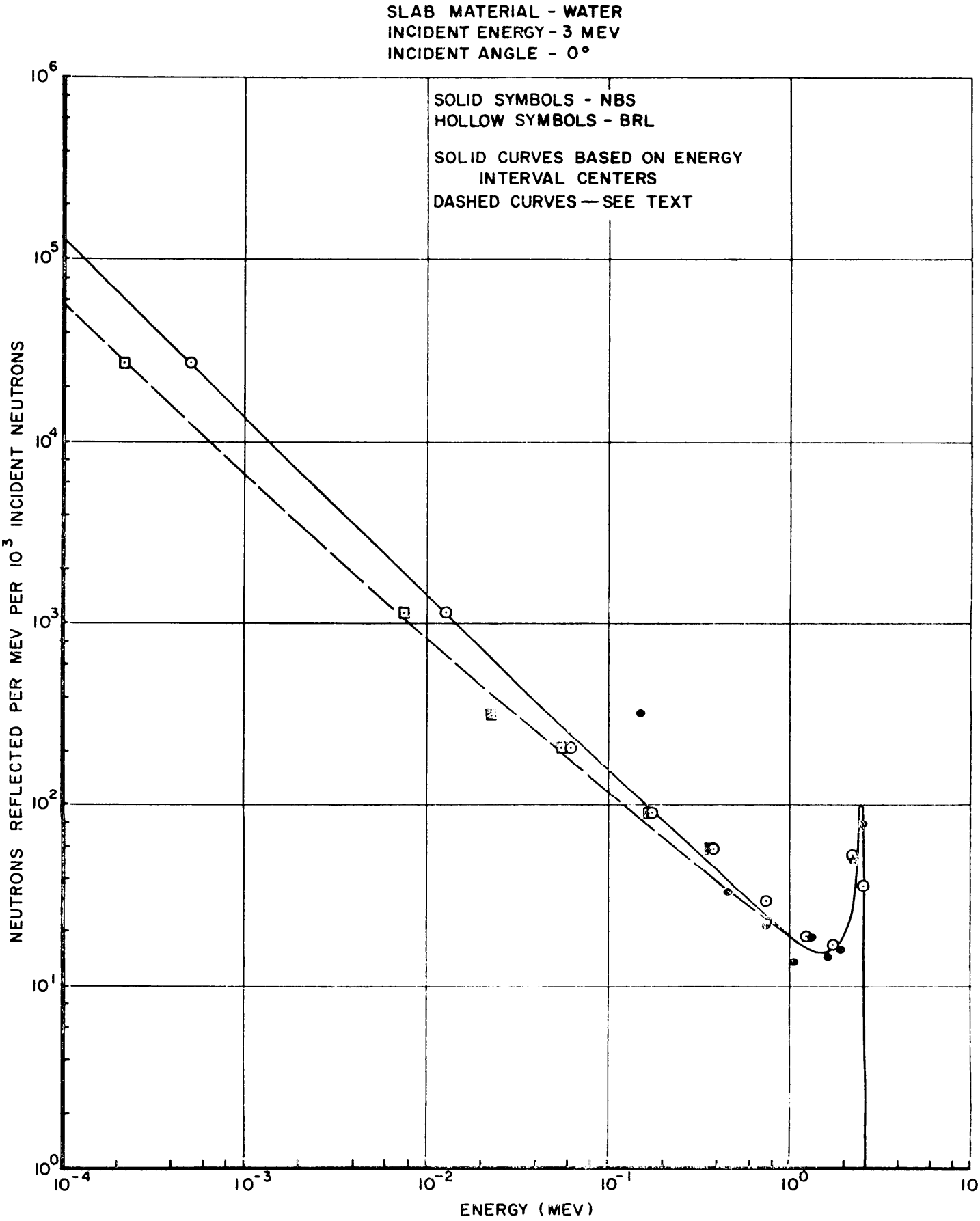


FIG. A4 (U)- NEUTRON REFLECTED ENERGY SPECTRUM (U)

SLAB MATERIAL - WATER
INCIDENT ENERGY - 3 MEV
INCIDENT ANGLE - 45°

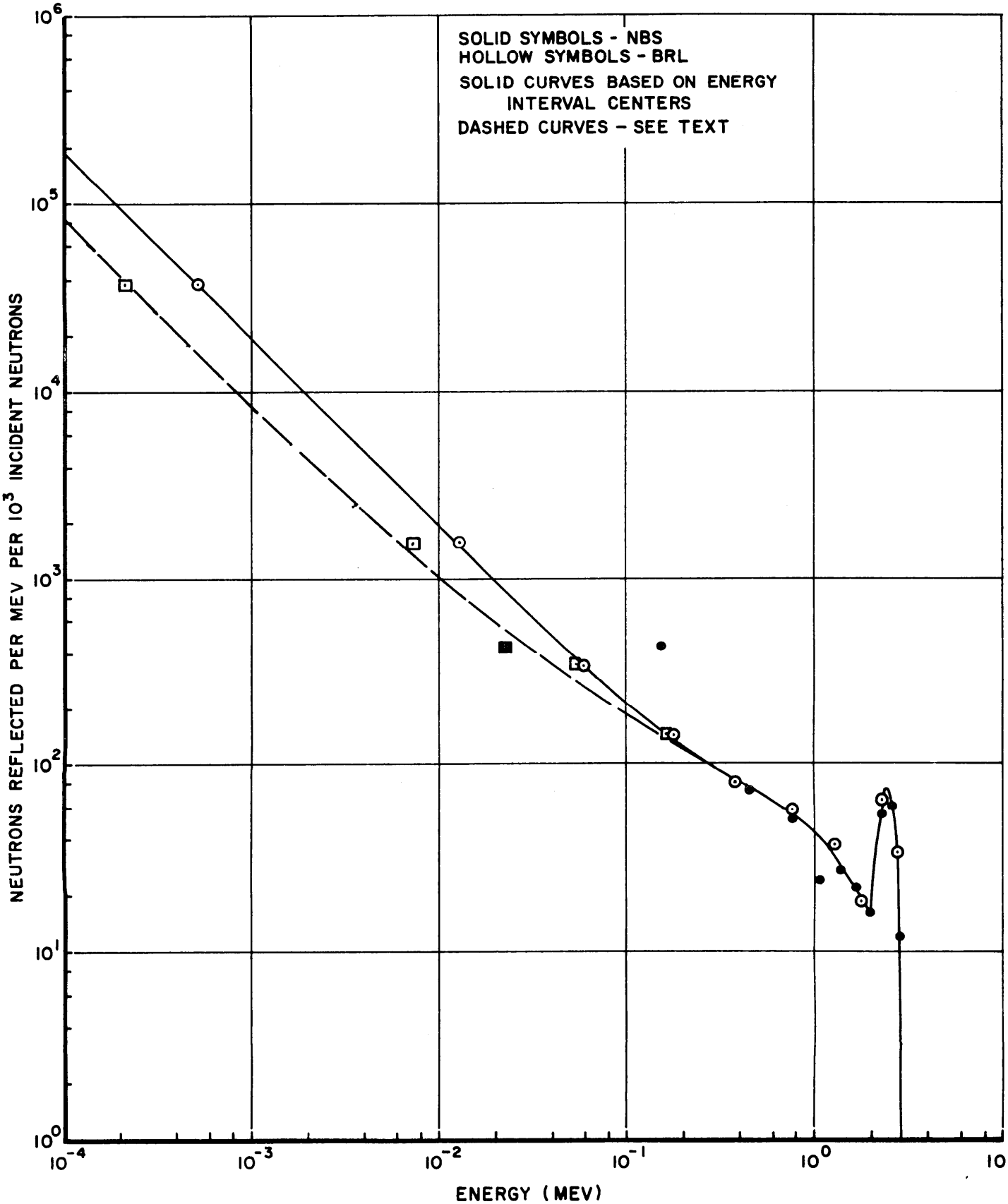


FIG. A5 (U) NEUTRON REFLECTED ANGULAR DISTRIBUTION (U)

SLAB MATERIAL – WATER
INCIDENT ENERGY – 1.0 MEV
INCIDENT ANGLE – θ_0
● – NBS ⊙ – BRL

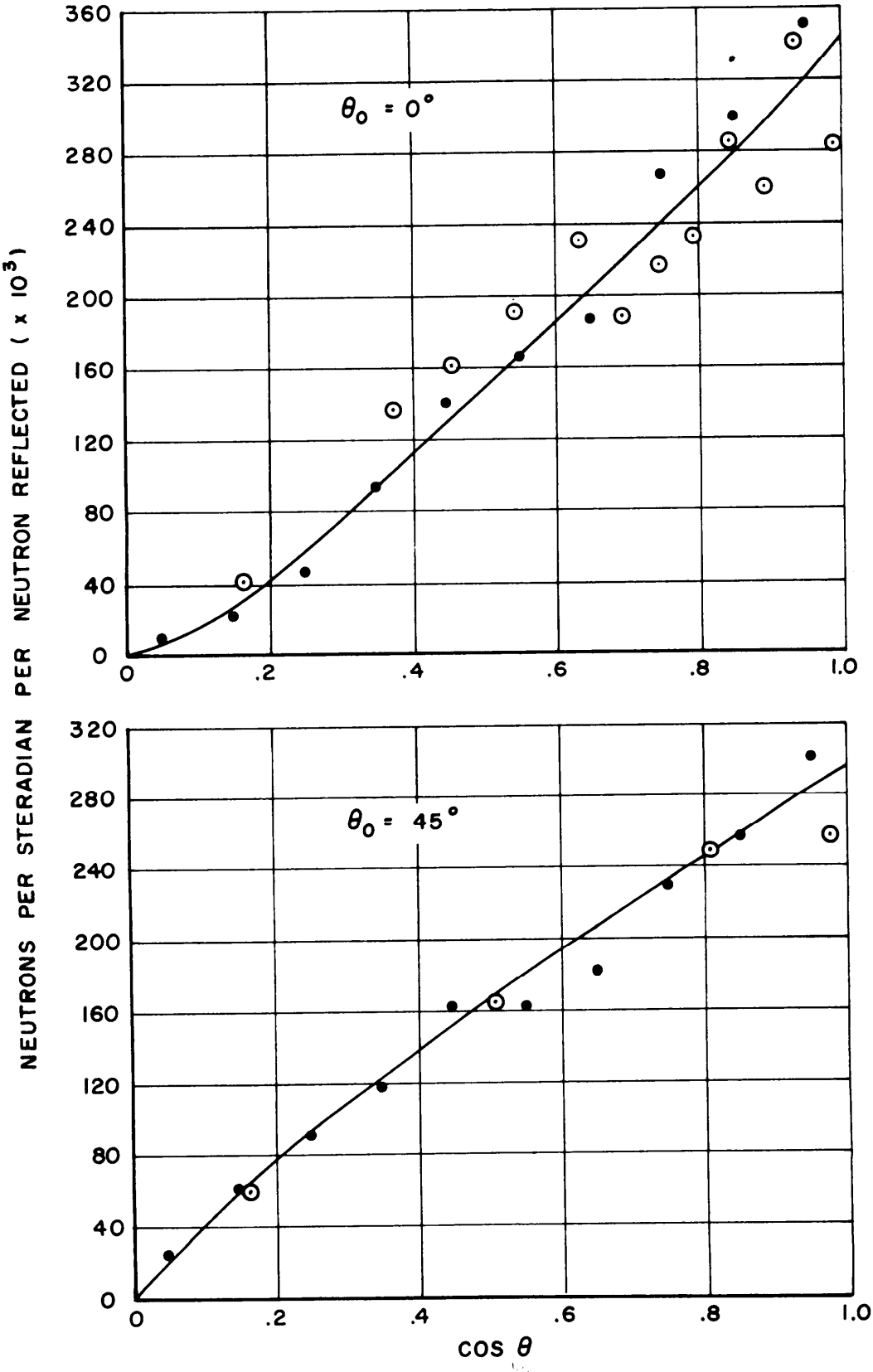
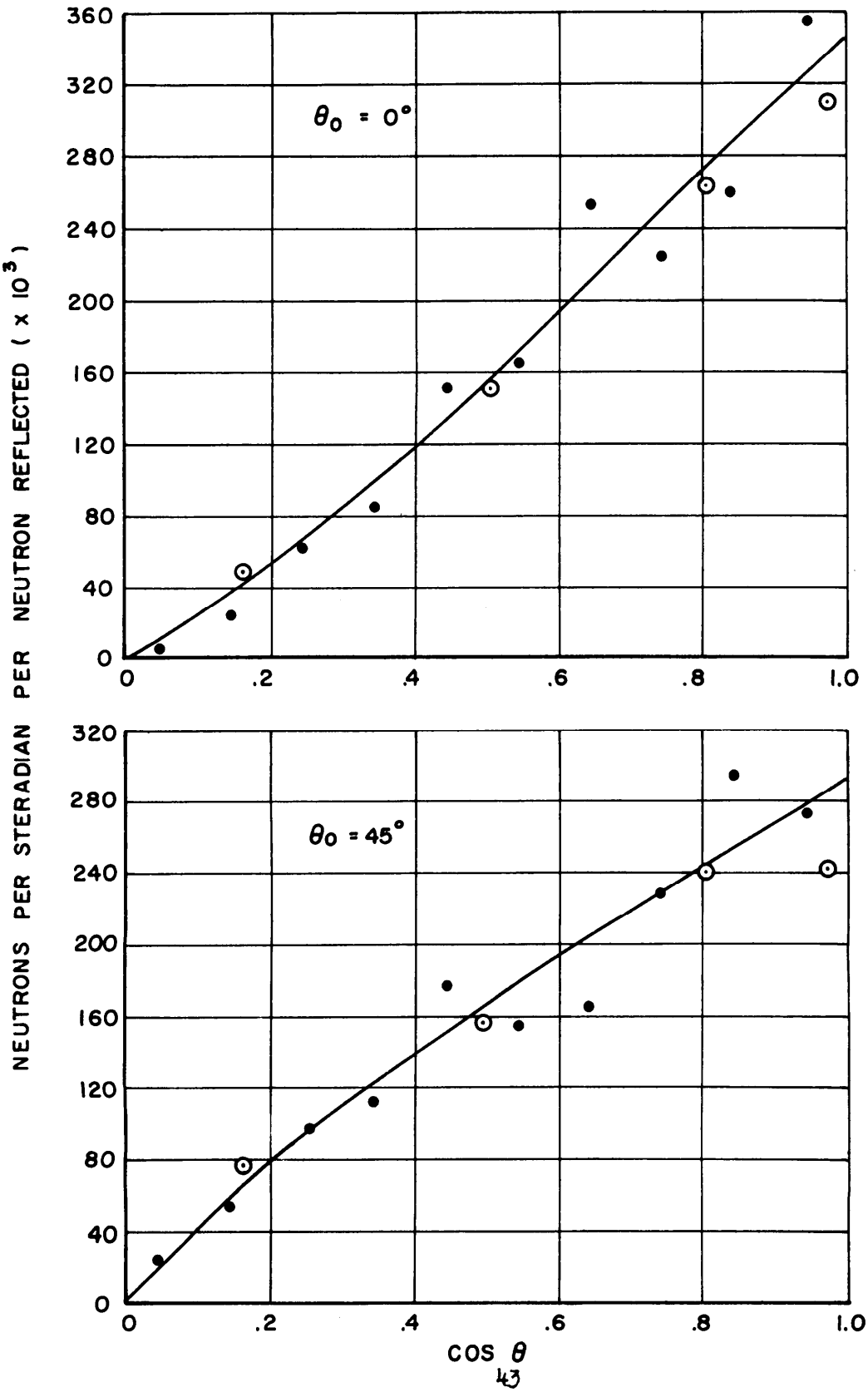


FIG. A6 (U) NEUTRON REFLECTED ANGULAR DISTRIBUTION (U)

SLAB MATERIAL – WATER
INCIDENT ENERGY – 3.0 MEV
INCIDENT ANGLE – θ_0
● – NBS ⊙ – BRL



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MACHINE PRINTOUTS

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
701	.10000000	1.00000000	.00001010	**2E**

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.14877089	.05145361	.16964701	.02391960	.02828114
1	.42910817	.09081388	.33174846	.10694585	.17780179
2	.21859219	.02294498	.10718777	.03801914	.04458470
3	.03521757	.00676905	.02729132	.00222257	.00106374
5					
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.06288301				
1	.11103879				
2	.01213505				
3	.00398446				
5					
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.18481776	.03172205	.21655867	.07459671	.16248669
2	.12928841	.01920026	.07158430	.03801914	.04314211
3	.01974954	.00517070	.02347377	.00222257	.00106374
5					
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.10133835				
2	.01213505				
3	.00398446				
5					
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	1.09999999	1.00000000	1.44808098
1	.55599999	.85952023	.62534620	.08800000	1.33545694
2	.19800000	.32036928	.21127269	.00700000	.45046383
3	.04100000	.05566480	.03626815		.07654872
5					
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
701	1000	2E	2541	58.102473

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.100000	1.000000	.000010	1.000000	1.100000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.086000	.148771	.087910
2				.030000	.051454	.029001
3				.088000	.169647	.090992
4				.013000	.023920	.012830
5				.018000	.028281	.018254
6				.025000	.062883	.052021
7						
8						
9						
10						

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.021000	.080214	.047024
2				.018000	.068755	.042665
3				.029000	.092310	.059591
4				.023000	.073211	.052887
5				.019000	.060479	.048578
6				.018000	.057296	.043513
7				.014000	.044563	.037628
8				.032000	.061115	.055448
9				.024000	.045836	.050700
10				.019000	.036287	.047633
11				.023000	.043927	.0 0528
12				.020000	.009549	.035328

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.260000	.484955	.291009	003235	.967647		.740000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
1102.202618		0.01244

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
702	.10000000	.86603000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.16609003	.03037600	.19443201	.06245702	.02705654
1	.37418189	.09694896	.33679778	.11001584	.16423010
2	.18345403	.01961766	.08369331	.03411184	.03251167
3	.05090508	.00364629	.01962140	.00254624	.00245103
5					
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.08597099				
1	.10916701				
2	.01170575				
3	.00106059				
5					
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.16451059	.05294671	.21991903	.08698794	.14218271
2	.11403955	.01332957	.06380543	.03411184	.03086241
3	.03640337	.00364629	.01812631	.00254624	.00245103
5					
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.10591808				
2	.00997979				
3	.00106059				
5					
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.15469441	1.27016384	1.15469441	1.69904012
1	.52699999	.84290143	.60538390	.07043635	1.26177793
2	.16900000	.26959267	.17627503	.00346409	.36855834
3	.04400000	.06423383	.04001708		.08023064
5					
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
702	1000	2E	θφ	60.909397

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.100000	.866030	.000010	1.154694	1.270164

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.099000	.143839	.084996
2				.021000	.026306	.014827
3				.092000	.168384	.090315
4				.025000	.054090	.029012
5				.014000	.023432	.015124
6				.033000	.074453	.061593
7						
8						
9						
10						

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.037000	.070665	.036003
2				.028000	.053476	.035588
3				.033000	.063025	.040004
4				.047000	.089763	.056759
5				.023000	.043927	.044233
6				.024000	.045836	.048807
7				.031000	.059205	.058162
8				.030000	.057296	.056332
9				.004000	.007639	.026682
10				.007000	.013369	.042958
11				.007000	.013369	.046871
12				.013000	.024828	.072664

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.284000	.490504	.295867	0.04092	.959077		.716000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
1102.205236		0.01441

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
703	.10000000	.70711000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.21201955	.03948751	.22538799	.10026451	.12881601
1	.38900081	.04757874	.30349090	.08238862	.12970230
2	.15159555	.02295061	.06569725	.01989707	.02438445
3	.03020467	.00722793	.00802578	.00101987	.00115039
5					
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.05920554				
1	.08492158				
2	.01109618				
3					
5					
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.18197196	.02935320	.21800025	.07511313	.11794479
2	.10010216	.00658489	.04601700	.01989707	.02438445
3	.02329856	.00722793	.00802578	.00101987	.00115039
5					
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.08365918				
2	.01109618				
3					
5					
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	1.55562783	1.41420712	2.14261189
1	.44999999	.75129713	.53065018	.04525464	1.08233758
2	.14000000	.20949596	.13791686	.00141422	.29703531
3	.02800000	.04072253	.02579405		.04762864
5					
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
703	1000	2E	θφ	45.831067

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.100000	.707110	.000010	1.414207	1.555628

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.111000	.149921	.088590
2				.024000	.027922	.015738
3				.103000	.159374	.085482
4				.030000	.070898	.038027
5				.041000	.091087	.058793
6				.027000	.041865	.034634
7						
8						
9						
10						

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.033000	.063025	.027640
2				.029000	.055386	.028679
3				.036000	.068755	.035314
4				.051000	.097403	.049661
5				.034000	.064935	.053753
6				.022000	.042017	.037442
7				.031000	.059205	.049200
8				.044000	.084034	.065439
9				.003000	.005730	.015613
10				.006000	.011459	.029338
11				.020000	.038197	.092589
12				.027000	.051566	.128898

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.336000	.541067	.321263	0.04708	.952919		.664000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
1102.205236		0.01401

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
704	.10000000	.34202000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.21338703	.05479000	.29711649	.14823752	.28184500
1	.22053366	.05430523	.17535587	.04469464	.05306968
2	.07680963	.02384578	.03507383	.00413683	.00345581
3	.00915015	.00575664	.00354534		
5					
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.17506749				
1	.02303856				
2	.00210719				
3					
5					
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.12670029	.03561751	.14756917	.03412232	.05306968
2	.05294453	.01472334	.03383966	.00413683	.00345581
3	.00666142	.00327487	.00354534		
5					
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.02303856				
2	.00210719				
3					
5					
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	3.21618617	2.92380562	4.02807689
1	.26499999	.42011753	.27298377		.57099764
2	.06800000	.11120736	.07092459		.14542907
3	.00900000	.01348163	.00826150		.01845213
5					
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
704	1000	2E	$\theta\phi$	.091874

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.100000	.342020	.000010	2.923806	3.216186

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.116000	.072983	.043126
2				.030000	.018739	.010562
3				.144000	.101620	.054505
4				.065000	.050700	.027194
5				.099000	.096397	.062220
6				.057000	.059877	.049534
7						
8						
9						
10						

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.063000	.120321	.024749
2				.047000	.089763	.022672
3				.039000	.074484	.018737
4				.080000	.152788	.037467
5				.022000	.042017	.017318
6				.031000	.059205	.024904
7				.051000	.097403	.037292
8				.090000	.171887	.070739
9				.006000	.011459	.014893
10				.011000	.021008	.025676
11				.029000	.055386	.066280
12				.042000	.080214	.111275

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.511000	.400315	.247141	010587	.894121		.489000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
1102.205236		002072

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
705	.25000000	1.00000000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.11858341	.04020378	.12017550	.02911291	.04454940
1	.36004169	.04465252	.26326873	.09683726	.13932442
2	.25485146	.02731884	.16222721	.03863877	.07455026
3	.11556716	.02853953	.05296270	.02109422	.03356080
5	.00769749	.00181168	.00944697		.00136514
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.00986440	.03278630	.02727431		
1	.09762640	.11326639	.14856543		
2	.04393371	.05848683	.03539709		
3	.00740161	.00475368	.00989556		
5		.00132960			
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.11057889	.01884527	.13928696	.06495659	.10423526
2	.14135131	.01548948	.07962257	.02287109	.05503276
3	.05240690	.01913036	.03511135	.01573079	.02616066
5	.00769749				.00136514
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.09091664	.10161155	.13777074		
2	.03642673	.05703474	.03423181		
3	.00740161	.00475368	.00989556		
5		.00132960			
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	1.58750000	1.00000000	1.40212725
1	.65599999	.93520190	.96084593	.16700000	1.43058285
2	.29299999	.46906049	.40091357	.02700001	.72240418
3	.11300000	.17459091	.12910172	.00399999	.27777526
5	.00700000	.01039223	.00739943		.02165087
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
705	**1000**	**2E**	**2541**	42.922008

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.250000	1.000000	.000010	1.000000	1.700000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.071000	.118583	.045341
2				.021000	.040204	.014663
3				.067000	.120175	.041708
4				.015000	.029113	.010104
5				.022000	.044549	.018606
6				.006000	.009864	.005280
7				.012000	.032786	.023143
8				.016000	.027274	.022461
9						
10						

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.022000	.084034	.035264
2				.021000	.080214	.034760
3				.028000	.089127	.038223
4				.019000	.060479	.032421
5				.020000	.063662	.032260
6				.015000	.047746	.026616
7				.018000	.057296	.037008
8				.020000	.038197	.027461
9				.019000	.036287	.028954
10				.015000	.028648	.027590
11				.013000	.024828	.026992
12				.020000	.009549	.025085

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.230000	.422550	.181306	0.02718	.972815		.770000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
1702.202618		0.02955

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
706	.25000000	.86603000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.13147503	.02845152	.12901552	.04188549	.08781200
1	.31865391	.06640917	.31799985	.07150520	.14194033
2	.25953053	.04023464	.12894030	.02112438	.04982896
3	.06521920	.00872078	.03333062	.00641694	.01400703
5	.00114414		.00258969		
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.02189752	.02295703	.05163802		
1	.08558734	.16390650	.13453841		
2	.03461362	.04295785	.02715690		
3	.00571479	.01389833	.00638382		
5			.00112693		
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.11325051	.03200045	.15787091	.04981381	.09856209
2	.11706898	.02752729	.08388928	.01468260	.04166009
3	.03500802	.00768669	.02734059	.00534907	.01194903
5	.00114414		.00258969		
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.07152549	.14475327	.12882250		
2	.03201950	.03870302	.02715690		
3	.00571479	.01389833	.00638382		
5			.00112693		
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.15469441	1.83307737	1.15469441	1.65109068
1	.59999999	.94209053	.95617271	.14549149	1.44603221
2	.25199999	.40118277	.32741480	.01847510	.62286230
3	.07500000	.11563974	.09061662	.00230939	.15600090
5	.00400000	.00486076	.00389369		.00486076
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
706	1000	2E	$\theta\phi$	49.561803

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.250000	.866030	.000010	1.154694	1.962980

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.077000	.113861	.043535
2				.017000	.024640	.008986
3				.081000	.111731	.038777
4				.024000	.036274	.012589
5				.034000	.076048	.031761
6				.011000	.018964	.010151
7				.009000	.019881	.014034
8				.025000	.044720	.036828
9						
10						

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.048000	.091673	.034129
2				.023000	.043927	.020494
3				.045000	.085943	.040268
4				.042000	.080214	.036450
5				.018000	.034377	.027056
6				.024000	.045836	.031524
7				.027000	.051566	.035228
8				.027000	.051566	.034025
9				.004000	.007639	.019279
10				.005000	.009549	.026185
11				.005000	.009549	.021696
12				.010000	.019099	.049262

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.278000	.446120	.196663	0.03737	.962624		.713000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
1702.205236		0.03361

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
707	.25000000	.70711000	.00001010	2E

SLAB CONFIGURATION WATER

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.18308552	.03391402	.15400201	.06370601	.11508098
1	.35069781	.05423932	.33592984	.10719605	.13763257
2	.20833390	.02469247	.15747144	.03635652	.04077251
3	.05782879	.00873498	.02590516	.01158605	.01050532
5	.00398754		.00210057		
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.07743049	.02981304	.06788152		
1	.06653844	.12708883	.11583502		
2	.01686486	.02678475	.02738733		
3		.00373253	.00526342		
5					
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.12512950	.03017672	.20336370	.06147980	.10461719
2	.12434020	.01559130	.09656692	.02632545	.03959876
3	.03245645	.00873498	.02063654	.00889324	.00926621
5	.00287463		.00210057		
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.05170360	.11918158	.11071167		
2	.01386006	.02678475	.02623306		
3		.00373253	.00526342		
5					
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	2.24505380	1.41420712	2.14407731
1	.54699999	.91808613	.87205441	.11172236	1.40688024
2	.20499999	.37778575	.29167744	.00848523	.54714903
3	.06300000	.08898338	.06166053		.12355625
5	.00300000	.00497520	.00298012		.00608812
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
707	1000	2E	θφ	60.700610

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.250000	.707110	.000010	1.414207	2.404152

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.084000	.129462	.049500
2				.020000	.023981	.008746
3				.083000	.108896	.037793
4				.032000	.045047	.015634
5				.048000	.081375	.033986
6				.026000	.054752	.029308
7				.010000	.021081	.014881
8				.031000	.048000	.039529
9						
10						

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.041000	.078304	.025050
2				.026000	.049656	.018616
3				.042000	.080214	.028899
4				.055000	.105042	.039770
5				.023000	.043927	.028998
6				.020000	.038197	.025661
7				.031000	.059205	.032692
8				.046000	.087853	.049732
9				.009000	.017189	.037074
10				.007000	.013369	.028428
11				.016000	.030558	.049150
12				.018000	.034377	.074007

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.334000	.512594	.229378	0.05059	.949409		.666000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
1702.205236		0.03786

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
708	.25000000	.34202000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.14587302	.03567049	.18620151	.06763099	.16176249
1	.25975960	.05227983	.22429880	.05722663	.13324671
2	.11383878	.00940426	.07374197	.01284326	.02696460
3	.02028368	.00117155	.00709598	.00273943	.00399211
5					
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.11242251	.20408903	.15461452		
1	.03676254	.05635042	.04477593		
2	.00318653	.00483915			
3					
5					
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.12070093	.03842607	.14028821	.04005112	.09874214
2	.08050937	.00598900	.03617987	.01284326	.02696460
3	.01873471		.00709598	.00273943	.00399211
5					
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.03318273	.04385201	.04477593		
2	.00318653	.00483915			
3					
5					
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	4.64154142	2.92380562	3.94892943
1	.33399999	.57463816	.45301554	.01461903	.87931949
2	.10100000	.17051178	.11314011		.24481855
3	.02300000	.03256224	.02023215		.03528276
5					
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
708	1000	2E	$\theta\phi$	2.504389

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.250000	.342020	.000010	2.923806	4.970469

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.075000	.049891	.019076
2				.021000	.012200	.004449
3				.105000	.063685	.022102
4				.034000	.023131	.008028
5				.072000	.055326	.023107
6				.053000	.038451	.020582
7				.066000	.069803	.049272
8				.054000	.052881	.043549
9						
10						

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.052000	.099312	.015504
2				.027000	.051566	.009270
3				.050000	.095493	.018241
4				.084000	.160428	.028577
5				.021000	.040107	.012683
6				.040000	.076394	.024047
7				.038000	.072574	.023942
8				.094000	.179526	.065536
9				.007000	.013369	.013023
10				.011000	.021008	.023978
11				.016000	.030558	.032501
12				.040000	.076394	.095889

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.480000	.365368	.190167	011433	.885662		.520000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
1702.205236		005955

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
709	.50000000	1.00000000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.08426989	.01631481	.09139021	.02415369	.05495103
1	.27513527	.04520865	.22251436	.04887402	.12525484
2	.17538266	.02948968	.14068315	.05358590	.05454611
3	.13690698	.01432155	.08225267	.01669909	.01631925
5	.01011123	.00108435	.00940093		.00364926
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.02108660	.04537940	.03089601	.05995867	.11949520
1	.05342721	.09352910	.08233282	.14607108	.24939787
2	.03084546	.06898384	.05091739	.05359417	.11250716
3	.00949332	.02569477	.00966577	.03893067	.03310017
5	.00132472	.00107088	.00232935	.00113039	.00115944
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.06887374	.02015314	.09618754	.02869749	.07277440
2	.07843086	.02081484	.07839472	.03174440	.04573099
3	.06362656	.01134976	.05666204	.00634673	.01465944
5	.00532193		.00595958		.00364926
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.04142538	.06868827	.06481999	.11469963	.21785326
2	.02565634	.06343372	.04776852	.05051168	.10233409
3	.00949332	.02468911	.00966577	.02974825	.02976968
5	.00132472	.00107088	.00232935	.00113039	.00115944
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	2.40000000	1.00000000	1.51241102
1	.67599999	.98817285	1.57126217	.19400000	1.53574522
2	.37299999	.58182017	.74563297	.03700001	.80753552
3	.17600000	.26301066	.28529816	.00700000	.39038424
5	.01400000	.02194555	.01955574		.03126055
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
709	1000	2E	2541	39.350120

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.500000	1.000000	.000010	1.000000	2.400000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.047000	.084270	.022823
2				.009000	.016315	.004715
3				.058000	.091390	.022467
4				.013000	.024154	.005938
5				.028000	.054951	.016256
6				.013000	.021087	.007995
7				.022000	.045379	.022690
8				.012000	.030896	.018023
9				.028000	.059959	.044969
10				.056000	.119495	.109537

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.028000	.106952	.052643
2				.023000	.087853	.037042
3				.031000	.098676	.049456
4				.026000	.082760	.045616
5				.018000	.057296	.031087
6				.020000	.063662	.040834
7				.020000	.063662	.038152
8				.033000	.063025	.049989
9				.025000	.047746	.043541
10				.015000	.028648	.032652
11				.018000	.034377	.044111
12				.029000	.013846	.046705

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.286000	.547895	.274913	0.07947	.920528		.714000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
2402.202618		0.13893

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
710	.50000000	.86603000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.11692202	.02708404	.13616200	.02912704	.05906099
1	.29591153	.07498555	.22359030	.05489132	.08401424
2	.15526440	.03907061	.14323098	.02658196	.05456543
3	.11342102	.02815628	.05067483	.03167464	.01767186
5	.01265442	.00228299	.01165837	.00441567	.00101673
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.04657702	.03528003	.03273151	.05915250	.14602345
1	.05617477	.09852965	.07546353	.17856623	.22876023
2	.04783862	.03289891	.04097916	.05907970	.05908223
3	.01242251	.01471376	.02388098	.01495860	.01288892
5	.00114398	.00164147	.00124971		
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.09256543	.02054010	.09507047	.03120381	.05711537
2	.06790760	.02312437	.07770055	.02338935	.03065183
3	.05702508	.00768543	.02865869	.01800504	.01584928
5	.00457305	.00228299	.00529997	.00441567	.00101673
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.04253286	.06905758	.06700320	.13827042	.20672697
2	.03291292	.03289891	.03182185	.05450302	.05370876
3	.01242251	.01471376	.01643233	.01348303	.00581631
5	.00114398	.00164147	.00124971		
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.15469441	2.77126658	1.15469441	1.81735673
1	.61699999	.99329038	1.54803416	.17320416	1.54409151
2	.29399999	.45402245	.53773827	.02540328	.68399529
3	.12600000	.19355554	.17977358	.00346409	.32392748
5	.01400000	.02162358	.01605777		.03606334
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
710	1000	2E	θφ	45.437363

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.500000	.866030	.000010	1.154694	2.771267

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.069000	.101258	.027424
2				.012000	.023456	.006059
3				.069000	.117920	.028989
4				.014000	.025225	.006201
5				.036000	.051149	.015131
6				.023000	.040337	.015294
7				.020000	.030554	.015277
8				.017000	.028346	.016535
9				.024000	.051228	.038421
10				.058000	.126461	.115922

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.056000	.106952	.037832
2				.038000	.072574	.035514
3				.037000	.070665	.030879
4				.041000	.078304	.033141
5				.033000	.063025	.042738
6				.031000	.059205	.041765
7				.028000	.053476	.044429
8				.039000	.074484	.064608
9				.007000	.013369	.043862
10				.011000	.021008	.043495
11				.011000	.021008	.064815
12				.010000	.019099	.061717

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.342000	.595933	.285255	Q08401	.915987		.658000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
2402.205236		Q12282

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
711	.50000000	.70711000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.12793098	.02092902	.10488851	.02791850	.07792805
1	.32481609	.04421062	.25098223	.04005369	.11864808
2	.16023984	.03838178	.10623107	.02970792	.04660410
3	.08761618	.00931735	.05170056	.01732116	.02507357
5	.00518494		.00232841		.00111575
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.04594602	.07638153	.07569100	.03334506	.20369151
1	.08089998	.10707934	.07598223	.09944748	.24919377
2	.01908087	.03661775	.01870717	.02778985	.05534566
3	.00288821	.00820148	.00586925	.00468893	.01026306
5		.00106550			
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.08951605	.02320438	.11373952	.02004075	.08414372
2	.07577078	.01592772	.07460060	.02682448	.04360341
3	.04310146	.00672199	.03056320	.00948533	.02247214
5	.00266969		.00232841		.00111575
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.06161521	.07478095	.06463967	.09324448	.21363298
2	.01908087	.02637338	.01483163	.02545670	.04632777
3	.00288821	.00820148	.00267788	.00468893	.01026306
5		.00106550			
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	3.39409710	1.41420712	2.18887867
1	.55999999	.97715002	1.43588490	.13859230	1.52990581
2	.24999999	.38152521	.40090407	.01272786	.55143386
3	.08900000	.14106369	.11987082		.22293975
5	.00500000	.00717935	.00517755		.00969460
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
711	1000	2E	$\theta\phi$	55.649220

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.500000	.707110	.000010	1.414207	3.394097

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.066000	.090461	.024500
2				.013000	.014799	.003823
3				.061000	.074168	.018233
4				.018000	.019741	.004853
5				.042000	.055104	.016301
6				.023000	.032489	.012319
7				.027000	.054010	.027005
8				.024000	.053522	.031221
9				.017000	.023579	.017684
10				.084000	.144032	.132030

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.041000	.078304	.027625
2				.044000	.084034	.030413
3				.042000	.080214	.027046
4				.068000	.129870	.054536
5				.025000	.047746	.031207
6				.024000	.045836	.029706
7				.033000	.063025	.037038
8				.045000	.085943	.062481
9				.006000	.011459	.023332
10				.010000	.019099	.055284
11				.009000	.017189	.045765
12				.028000	.053476	.125546

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.375000	.561905	.287969	0.10796	.892036		.625000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
2402.205236		0.14395

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
712	.50000000	.34202000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.09123602	.02474953	.08830051	.04447202	.09309852
1	.20004492	.03172711	.17215341	.04470812	.08428849
2	.09964172	.02063639	.06435247	.00943874	.02947461
3	.04736668	.01832651	.01922121	.01624044	.01042101
5	.00411744		.00252760	.00100298	.00111373
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.07024155	.13293900	.06131055	.18364599	.36065754
1	.04286583	.07267209	.03919500	.09251374	.11997646
2	.01193672	.02116008	.02056411	.01309868	.02428292
3	.00527751	.00550645	.00222561	.01109692	.00331878
5					
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.08707594	.01605394	.08983513	.03089219	.05893294
2	.05480783	.01602228	.04237198	.00530595	.02693202
3	.02563716	.00758950	.00803113	.01103676	.01042101
5	.00123811		.00252760	.00100298	.00111373
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.03343009	.05995626	.03705631	.08497015	.11140695
2	.00924112	.02014414	.01256411	.01309868	.02428292
3	.00527751	.00357452	.00222561	.01109692	.00331878
5					
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	7.01713350	2.92380562	4.03632706
1	.37099999	.63300035	.80090584	.02339046	.92353560
2	.15000000	.22477104	.22092289		.31458644
3	.06200000	.08820890	.07989679		.13900114
5	.00500000	.00588242	.00367482		.00876175
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
712	1000	2E	θφ	12.947896

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.500000	.342020	.000010	2.923806	7.017133

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.062000	.031205	.008451
2				.014000	.008465	.002187
3				.056000	.030200	.007424
4				.024000	.015210	.003739
5				.049000	.031842	.009420
6				.034000	.024024	.009109
7				.058000	.045468	.022734
8				.026000	.020969	.012232
9				.061000	.062811	.047108
10				.135000	.123352	.113073

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.067000	.127960	.020259
2				.038000	.072574	.014546
3				.052000	.099312	.018654
4				.087000	.166157	.037176
5				.021000	.040107	.011601
6				.031000	.059205	.019095
7				.051000	.097403	.034078
8				.090000	.171887	.070511
9				.005000	.009549	.008420
10				.009000	.017189	.021814
11				.024000	.045836	.066343
12				.044000	.084034	.127229

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.519000	.393546	.235477	0.19538	.804609		.481000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
2402.205236		0.18823

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
713	1.00000000	1.00000000	.00001010	2D

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.14101070	.09637273	.03644318	.01852341	.03656260
1	.28813722	.23765867	.06992236	.04414409	.06221600
2	.21915066	.17063542	.08066730	.02747715	.03606541
3	.14035776	.11087392	.02832716	.01802319	.02548883
5	.03014009	.01888619	.00658973	.00220725	.00276190
8	.00217349				
12					
18					
24					

INCHES	6	7	8	9	10
	.01450549	.03281610	.02846058	.06918997	.22512753
1	.07785312	.08883978	.05990517	.13866839	.22536348
2	.02457450	.05171457	.05310198	.10468512	.13099958
3	.01777818	.03692029	.03101223	.04717760	.02703225
5	.00248478	.00360645	.00123330	.00768881	.00753439
8				.00113681	
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.05085284	.08944503	.03333929	.02439712	.03374936
2	.09512312	.07625167	.04723926	.01856141	.03138093
3	.05381072	.04781656	.02030229	.01459982	.01596505
5	.01698817	.01559455	.00183618	.00220725	
8	.00217349				
12					
18					
24					

INCHES	6	7	8	9	10
1	.05958130	.06208408	.04514223	.10501512	.16923215
2	.01575408	.03446404	.04062562	.08275881	.09966890
3	.01777818	.03422103	.02750182	.04511057	.02145170
5	.00248478	.00360645	.00123330	.00768881	.00753439
8				.00113681	
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	3.79999999	1.00000000	1.65331315
1	.65899999	.91783853	2.29099887	.24499999	1.53770828
2	.40799999	.60182783	1.17097929	.06000000	.95907169
3	.21199999	.31255775	.50923499	.01400000	.49699141
5	.04200000	.05917388	.08205066		.08313289
8	.00300000	.00331030	.00476994		.00331030
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
713	1000	2D	2541	33.694642

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
1.000000	1.000000	.000010	1.000000	3.800000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.067000	.141011	.023749
2				.051000	.096373	.014963
3				.019000	.036443	.006809
4				.009000	.018523	.004436
5				.019000	.036563	.011546
6				.007000	.014505	.005344
7				.017000	.032816	.015544
8				.012000	.028461	.016477
9				.034000	.069190	.050982
10				.119000	.225128	.201430

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.025000	.095493	.043366
2				.034000	.129870	.064385
3				.031000	.098676	.052716
4				.030000	.095493	.056596
5				.025000	.079577	.050940
6				.021000	.066845	.055045
7				.017000	.054113	.046147
8				.041000	.078304	.059594
9				.035000	.066845	.060160
10				.029000	.055386	.077409
11				.031000	.059205	.084502
12				.035000	.016711	.044622

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.354000	.699012	.351281	013456	.865436		.646000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
3803.402618		038011

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
714	1.00000000	.86603000	.00001010	2D

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.10513901	.10424052	.06054754	.04241403	.05941802
1	.26510256	.24336393	.08914608	.06109691	.06668173
2	.23712737	.17059765	.07815018	.02682897	.03529124
3	.10977506	.06081754	.03192988	.01334181	.02127226
5	.03673789	.00775391	.00159810	.00986216	.01415601
8			.00105445		
12					
18					
24					

INCHES	6	7	8	9	10
	.03033354	.04773401	.03799853	.06876749	.21735899
1	.07065913	.10063732	.06916653	.16046467	.27047804
2	.02515243	.05100240	.03344007	.08388208	.09333846
3	.01839853	.03037681	.01358404	.03493694	.03843246
5	.00373123	.00884650	.00230707	.00445923	.00492935
8	.00101639				
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.05802966	.07496175	.03630216	.04536670	.03991530
2	.08530623	.07739710	.04230554	.02150432	.02774720
3	.06855380	.03017627	.01694563	.00404594	.02127226
5	.01728334	.00666382		.00232423	.01415601
8			.00105445		
12					
18					
24					

INCHES	6	7	8	9	10
1	.05427432	.07546287	.04455399	.12501008	.19708594
2	.02209455	.04321727	.02617923	.07354022	.07697960
3	.01672578	.02823782	.00712585	.03126813	.03378779
5	.00373123	.00884650	.00230707	.00445923	.00492935
8	.00101639				
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.15469441	4.38783875	1.15469441	1.89472714
1	.63999999	.97843758	2.42052217	.22747481	1.62427170
2	.35499999	.54130434	.99497444	.04503309	.87984394
3	.17200000	.26622212	.42886000	.00808286	.38094818
5	.04000000	.06470080	.08901230		.09438146
8	.00200000	.00207084	.00206998		.00207084
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
714	1000	2D	$\theta\phi$	38.907014

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
1.000000	.866030	.000010	1.154694	4.387839

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.058000	.091054	.015335
2				.062000	.090275	.014016
3				.027000	.052436	.009797
4				.016000	.036732	.008796
5				.027000	.051458	.016250
6				.017000	.026270	.009678
7				.021000	.041339	.019582
8				.019000	.032908	.019052
9				.035000	.059555	.043882
10				.109000	.188239	.168425

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.061000	.116501	.046387
2				.050000	.095493	.047867
3				.043000	.082124	.044027
4				.047000	.089763	.043699
5				.039000	.074484	.071898
6				.041000	.078304	.068208
7				.033000	.063025	.052926
8				.035000	.066845	.043180
9				.013000	.024828	.068895
10				.009000	.017189	.039726
11				.010000	.019099	.043793
12				.010000	.019099	.049741

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.391000	.670265	.324814	0.13691	.863088		.609000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
3803.405236		0.35015

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
715	1.00000000	.70711000	.00001010	2D

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.11885553	.12019302	.05656751	.04167505	.06632901
1	.24178376	.26177716	.09346943	.05477959	.08887265
2	.27474290	.12165437	.04000811	.01521623	.04332422
3	.10986481	.06681394	.02316096	.00924050	.02626937
5	.01322174	.03421460		.00366525	.00891633
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.04143501	.06899250	.04542551	.07178949	.25773950
1	.06390183	.11251276	.05915522	.14699151	.24831258
2	.02614329	.03590441	.04329640	.06266518	.09871362
3	.00550457	.01230574	.02790663	.02976940	.01971119
5			.00395857	.00174138	.00130265
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.05331971	.08795771	.05061059	.01760692	.06684681
2	.11030595	.06633513	.03076595	.01381088	.03630041
3	.05702746	.04911857	.01818554	.00811246	.02194534
5	.00572293	.01844634		.00366525	.00618053
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.03372761	.07665303	.04152406	.12955639	.21463302
2	.01920887	.03123151	.03309029	.05978980	.09466107
3	.00550457	.01102256	.01561077	.02517459	.01971119
5			.00395857	.00174138	.00130265
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	5.37398707	1.41420712	2.27136357
1	.57699999	.96618222	2.35027116	.19374638	1.56530287
2	.29999999	.52095559	.93271231	.02545572	.78712446
3	.13900000	.23424147	.32554318	.00282841	.33337551
5	.02700000	.04101765	.04275397		.06702053
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
715	1000	2D	$\theta\phi$	47.651203

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
1.000000	.707110	.000010	1.414207	5.373987

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.067000	.084044	.014155
2				.060000	.084990	.013196
3				.029000	.039999	.007474
4				.017000	.029469	.007057
5				.024000	.046902	.014811
6				.019000	.029299	.010794
7				.027000	.048785	.023109
8				.016000	.032121	.018596
9				.034000	.050763	.037404
10				.133000	.182250	.163066

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.065000	.124141	.050447
2				.057000	.108862	.051253
3				.052000	.099312	.036917
4				.049000	.093583	.037057
5				.027000	.051566	.046394
6				.043000	.082124	.055894
7				.030000	.057296	.036463
8				.045000	.085943	.047726
9				.013000	.024828	.051187
10				.011000	.021008	.052091
11				.014000	.026738	.032247
12				.020000	.038197	.093734

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.426000	.628622	.309662	0.15682	.843178		.574000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
3803.405236		0.36811

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
716	1.00000000	.34202000	.00001010	2D

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.10335099	.13915052	.05609400	.03823850	.07297500
1	.24463387	.22861864	.06088142	.06809069	.08841358
2	.13260396	.10016937	.03864552	.02792837	.01711117
3	.07605491	.04266809	.00829220	.01332834	.01259595
5	.00730757	.00818695	.00305360		.00150833
8					
12					
18					
24					

INCHES	6	7	8	9	10
	.06778400	.11296803	.05689502	.15963555	.44726698
1	.05829101	.06727780	.05672827	.13994524	.20635027
2	.03034291	.02397999	.01072728	.03047357	.04804325
3	.00958559	.01116010	.00484727	.01206487	.01352848
5					
8					
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.05856538	.12396642	.04365714	.03787450	.05563613
2	.06337561	.05287001	.03210059	.02310822	.01224986
3	.02638919	.03067931	.00829220	.00322425	.01077571
5	.00730757	.00615037	.00305360		.00150833
8					
12					
18					
24					

INCHES	6	7	8	9	10
1	.04516470	.04720837	.04036111	.12343869	.18243128
2	.02447779	.02213507	.00950200	.03047357	.04525724
3	.00770937	.00978394	.00484727	.01094148	.01165971
5					
8					
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	11.11046136	2.92380562	4.11112091
1	.43199999	.80508462	1.64644868	.04678087	1.26601169
2	.19499999	.31554998	.46902212		.46002540
3	.08500000	.12430242	.16495474		.20412578
5	.01100000	.01801987	.01220487		.02005646
8					
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
716	1000	2D	$\theta\phi$	29.483414

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
1.000000	.342020	.000010	2.923806	11.110461

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.060000	.035348	.005953
2				.078000	.047592	.007389
3				.033000	.019185	.003585
4				.017000	.013078	.003132
5				.039000	.024959	.007882
6				.031000	.023183	.008541
7				.044000	.038637	.018302
8				.029000	.019459	.011266
9				.046000	.054599	.040230
10				.152000	.152974	.136872

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.059000	.112681	.016049
2				.058000	.110772	.023671
3				.059000	.112681	.022493
4				.058000	.110772	.017046
5				.034000	.064935	.023290
6				.035000	.066845	.027143
7				.050000	.095493	.022929
8				.075000	.143239	.044749
9				.018000	.034377	.056329
10				.016000	.030558	.032272
11				.014000	.026738	.024372
12				.053000	.101222	.154041

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.529000	.429016	.243152	0.20016	.799829		.471000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
3803.405236		0.37838

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
717	2.00000000	1.00000000	.00001010	2C

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.07204859	.04365051	.03213510	.04091060	.02336350
1	.20630447	.17618085	.08530856	.08306368	.04064777
2	.21888746	.22217016	.12222299	.14446222	.08767512
3	.20654908	.17414217	.06426657	.06656107	.03553985
5	.09312552	.06144126	.01808274	.04284652	.01596605
8	.01573835	.01143181	.00962720	.01312221	.00103832
12	.00104627				.00224904
18					
24					

INCHES	6	7	8	9	10
	.01216480	.01655571	.01486591	.02640891	.06480830
1	.02858619	.07850669	.09421627	.13613284	.17098623
2	.03760224	.07761784	.05460337	.11937019	.17184237
3	.03023648	.04235766	.04299588	.08606393	.10547031
5	.01912949	.02413034	.01463992	.03650231	.04651501
8	.00109906	.01747418	.00369601	.00698317	.01074616
12	.00128952	.00118308		.00168484	.00107410
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.02379024	.04595628	.03713417	.02934341	.02811318
2	.06326934	.06461743	.06171834	.07483562	.04301808
3	.05802012	.07561116	.03383719	.03130825	.02745210
5	.03440915	.03692710	.00595274	.01971633	.01052836
8	.00876853	.00510702	.00381798	.00870023	.00103832
12	.00104627				.00224904
18					
24					

INCHES	6	7	8	9	10
1	.01948896	.05691473	.06017999	.09723388	.12263130
2	.02175187	.05459566	.03983679	.09073923	.13623043
3	.02419372	.03273793	.03409431	.06704689	.08741918
5	.00985618	.02098860	.00984615	.03207046	.03971024
8		.01194846	.00369601	.00238530	.01074616
12	.00128952	.00118308		.00168484	.00107410
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	4.29230769	1.00000000	1.31190045
1	.86099999	1.04278613	3.70283354	.52199999	1.62193354
2	.66899999	.92261279	2.74061042	.27200000	1.52845397
3	.45799999	.61372084	1.69513063	.14200001	.99618299
5	.18000000	.25800532	.66544805	.03800000	.41037916
8	.04000000	.06120801	.14494356	.00500000	.09595648
12	.00600000	.00852685	.02125148		.00852685
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
717	1000	2C	2541	15.616718

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
2.000000	1.000000	.000010	1.000000	4.100000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.039000	.072049	.011247
2				.031000	.043650	.006281
3				.019000	.032135	.006349
4				.017000	.040911	.012972
5				.014000	.023363	.010257
6				.007000	.012165	.006527
7				.007000	.016556	.011306
8				.007000	.014866	.012328
9				.016000	.026409	.025121
10				.031000	.064808	.064808

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.025000	.095493	.044731
2				.012000	.045836	.021505
3				.010000	.031831	.014727
4				.023000	.073211	.032433
5				.015000	.047746	.037345
6				.010000	.031831	.017114
7				.016000	.050929	.032832
8				.023000	.043927	.031554
9				.010000	.019099	.011507
10				.013000	.024828	.028259
11				.016000	.030558	.037968
12				.015000	.007162	.024061

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.188000	.346912	.167196	0.04631	.953690		.812000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
4104.102618		0.49263

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
718	2.00000000	.86603000	.00001010	2C

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON A REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.07212950	.04412050	.05731305	.05542301	.02709454
1	.20500366	.13951900	.13642539	.08862179	.04564459
2	.22531231	.15246021	.13730544	.09506324	.05475459
3	.19622808	.13475860	.09918629	.07584200	.03566537
5	.07030094	.04810667	.04509652	.02745487	.01164141
8	.00480028	.00966004	.00749073	.00660995	.00588597
12	.00185435				
18					
24					

INCHES	6	7	8	9	10
	.01620550	.02445655	.01587803	.01439350	.09279047
1	.04723946	.08141407	.09379574	.17536630	.19648854
2	.06423897	.08116913	.05872742	.15613876	.14431296
3	.01984166	.06415189	.05926375	.09450499	.10664438
5	.00902267	.02896470	.01518903	.05939663	.03893251
8	.00122546	.00524069	.00478442	.00339957	.00802364
12			.00110828	.00183814	
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.03000222	.04147595	.04107763	.03505752	.02780786
2	.07235890	.08383965	.08233334	.07882489	.03360301
3	.06141035	.06160293	.05401534	.03871737	.02440900
5	.02135624	.01057185	.00791791	.02435044	.00386535
8	.00122094	.00710069	.00149072	.00242202	.00448715
12					
18					
24					

INCHES	6	7	8	9	10
1	.02908980	.04151349	.07040188	.12808915	.15095140
2	.04168336	.05964149	.04424649	.14327274	.12559631
3	.01607366	.04490990	.03549886	.07652165	.09434652
5	.00781425	.01586315	.01184415	.04616429	.03497294
8	.00122546	.00524069	.00478442	.00339957	.00802364
12			.00110828	.00183814	
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.15469441	4.95630370	1.15469441	1.56470820
1	.83499999	1.14048267	4.06440958	.54501575	1.79820931
2	.61799999	.97174233	2.88683630	.25634216	1.50827221
3	.41999999	.62874850	1.71361160	.12124291	1.01215736
5	.14700000	.23127855	.62005164	.02655796	.37266373
8	.03100000	.04170500	.10886909	.00230939	.05342004
12	.00200000	.00294642	.01103955		.00440978
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
718	1000	2C	$\theta\phi$	18.032537

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
2.000000	.866030	.000010	1.154694	4.734247

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.046000	.062466	.009751
2				.027000	.038218	.005500
3				.028000	.049635	.009806
4				.023000	.047998	.015219
5				.011000	.023465	.010302
6				.009000	.014034	.007531
7				.013000	.021180	.014464
8				.009000	.013751	.011403
9				.011000	.012465	.011857
10				.042000	.080359	.080359

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.033000	.063025	.028702
2				.029000	.055386	.028868
3				.021000	.040107	.019718
4				.035000	.066845	.029505
5				.016000	.030558	.024574
6				.015000	.028648	.027480
7				.026000	.049656	.030362
8				.023000	.043927	.032349
9				.001000	.001910	.001933
10				.007000	.013369	.042116
11				.004000	.007639	.022907
12				.009000	.017189	.047986

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.219000	.363572	.176192	Q05675	.943247		.781000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
4104.105236		Q51826

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
719	2.00000000	.70711000	.00001010	2C

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.07777900	.07860950	.04401949	.07392651	.06066452
1	.22632629	.15867656	.09171810	.11331206	.07118794
2	.24883241	.19265726	.10200854	.10743401	.03394088
3	.20605388	.14418649	.07291160	.07902934	.06659269
5	.07533799	.04507594	.02264522	.02596608	.00254563
8	.00841211	.00880356		.00258324	
12					
18					
24					

INCHES	6	7	8	9	10
	.03649900	.05083952	.03432404	.02496205	.11147449
1	.07321833	.09784007	.09256598	.15931084	.26378851
2	.06379682	.06892207	.07119204	.13698618	.17963640
3	.02385486	.04670636	.04639435	.06819735	.08895426
5	.00450547	.02407152	.00863848	.02696126	.03470716
8	.00106567	.00111554	.00103691	.00207775	.00116103
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.03669685	.06001726	.03457251	.04668760	.03769415
2	.07604807	.07682456	.04853438	.05855392	.02336143
3	.05772179	.06841743	.03729988	.03036328	.03182634
5	.03219953	.01699437	.01786230	.02491445	.00100504
8	.00239107	.00880356		.00258324	
12					
18					
24					

INCHES	6	7	8	9	10
1	.03406635	.04885626	.05603542	.12919180	.18151420
2	.04524432	.04867385	.05287298	.11578156	.15137354
3	.01700041	.03980032	.03285175	.05414391	.08555325
5	.00275010	.01719327	.00629650	.02696126	.02670716
8	.00106567	.00111554	.00103691	.00207775	.00116103
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	6.07021212	1.41420712	1.97359657
1	.77999999	1.22818684	4.30163817	.56285443	1.91079912
2	.55699999	.92071334	2.71608590	.22344473	1.42885133
3	.33599999	.54407341	1.42094904	.08909506	.93197624
5	.11000000	.18702605	.43455403	.01414208	.28459683
8	.01100000	.02023478	.03189104		.02625582
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
719	1000	2C	$\theta\phi$	22.085274

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
2.000000	.707110	.000010	1.414207	5.798249

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.044000	.054998	.008585
2				.051000	.055586	.007999
3				.026000	.031127	.006149
4				.038000	.052274	.016575
5				.020000	.042896	.018833
6				.015000	.025809	.013849
7				.023000	.035949	.024551
8				.014000	.024271	.020127
9				.014000	.017651	.016790
10				.052000	.078825	.078825

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.046000	.087853	.029296
2				.029000	.055386	.020534
3				.034000	.064935	.024018
4				.048000	.091673	.033984
5				.023000	.043927	.025844
6				.024000	.045836	.039735
7				.023000	.043927	.024952
8				.036000	.068755	.049231
9				.007000	.013369	.038460
10				.006000	.011459	.023769
11				.009000	.017189	.038908
12				.012000	.022918	.056696

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.297000	.419386	.212282	0.07635	.923651		.703000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
4104.105236		0.51411

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
720	2.00000000	.34202000	.00001010	2C

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.09238049	.12090903	.06470002	.06949349	.03868898
1	.24551014	.18343558	.11864808	.14922065	.07076659
2	.18331707	.16004854	.06909997	.04532304	.03813831
3	.15694627	.07503210	.04376450	.04377851	.02217242
5	.01055554	.01053468	.00494870	.00758585	.00323417
8	.00444799	.00358311	.00363992	.00155909	
12					
18					
24					

INCHES	6	7	8	9	10
	.04983302	.14799301	.09964902	.16058450	.17743350
1	.05059167	.13010750	.08995467	.18909024	.30769504
2	.03605020	.07182881	.04828620	.05684201	.08354446
3	.01233628	.04570579	.01204316	.02771323	.04986399
5	.00403785	.01234468	.00808571	.00697407	.00307966
8		.00107321		.00121299	
12					
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.06424734	.07317376	.04406755	.05941306	.05154963
2	.07226451	.09299439	.04688932	.03049792	.03657086
3	.07545019	.03558825	.01362390	.03173300	.01140508
5	.00586259	.00749636	.00494870	.00758585	.00323417
8	.00180421	.00358311	.00363992	.00155909	
12					
18					
24					

INCHES	6	7	8	9	10
1	.02762062	.08182150	.06208077	.12365323	.25979226
2	.02462171	.06030829	.03751111	.04902546	.07195637
3	.01233628	.03849933	.00969557	.02771323	.04269388
5	.00403785	.01111364	.00670091	.00697407	.00307966
8		.00107321		.00121299	
12					
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	12.54987337	2.92380562	3.91038659
1	.58199999	1.28306676	4.23336199	.43564706	1.97066721
2	.33799999	.58696367	1.36327979	.06432373	.85680234
3	.18000000	.30751013	.63635552	.00877143	.49812766
5	.04200000	.06103381	.13181534		.07138092
8	.00700000	.01287254	.01520702		.01551631
12					
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
720	1000	2C	θφ	45.660249

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
2.000000	.342020	.000010	2.923806	11.987603

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.048000	.031596	.004932
2				.068000	.041353	.005951
3				.035000	.022129	.004372
4				.041000	.023768	.007536
5				.022000	.013232	.005809
6				.028000	.017044	.009146
7				.060000	.050617	.034567
8				.037000	.034082	.028263
9				.051000	.054923	.052244
10				.072000	.060686	.060686

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.061000	.116501	.020200
2				.034000	.064935	.013890
3				.053000	.101222	.020989
4				.067000	.127960	.024711
5				.021000	.040107	.012453
6				.028000	.053476	.023725
7				.046000	.087853	.023931
8				.080000	.152788	.064512
9				.008000	.015279	.019196
10				.015000	.028648	.040079
11				.012000	.022918	.032050
12				.037000	.070665	.112029

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.462000	.349430	.213506	.014140	.858596		.538000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
4104.105236		.061212

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
721	3.00000000	1.00000000	.00001010	2B

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.05792546	.04427642	.02587898	.02236600	.04073090
1	.15195828	.11150100	.09015382	.05982812	.09236665
2	.14258558	.14716312	.07443588	.07389873	.06252486
3	.21343215	.14638236	.06863683	.06666240	.07825187
5	.14524413	.09059713	.04460216	.05311437	.03555694
8	.04176576	.01379807	.02210556	.01159560	.02035401
12	.00949859	.00741759	.00927360	.00236631	
18		.00117075	.00162805		
24					

INCHES	6	7	8	9	10
	.02263600	.01803572	.01681989	.04039759	.02960971
1	.09345415	.07802231	.05591123	.07314335	.12865876
2	.10211998	.08465413	.08553180	.09308682	.12072888
3	.10904876	.06801154	.08538992	.06953218	.10874700
5	.05195004	.07482185	.03671793	.03829857	.06714979
8	.02782244	.02732139	.02648353	.01665726	.02836423
12	.01091851	.00734107	.00376665	.00233148	.00693373
18	.00276736				
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.01217075	.01950311	.02890115	.03371867	.04600001
2	.03565561	.04738292	.03757420	.03911205	.02682419
3	.04928635	.05927718	.02825186	.04572314	.04287088
5	.05497116	.02457737	.02438905	.03474917	.02181189
8	.01081467	.00683732	.00669619	.01159560	.01403618
12	.00120134	.00741759	.00642491	.00112380	
18		.00117075			
24					

INCHES	6	7	8	9	10
1	.04839668	.06795266	.05490604	.04306009	.11070703
2	.06440854	.06840518	.07742868	.06679193	.11742759
3	.07369754	.06529770	.07787565	.05808332	.09622828
5	.04104827	.06381064	.03389066	.03715511	.06030358
8	.02156810	.02503031	.02272360	.01523901	.02836423
12	.00976083	.00605038	.00376665	.00233148	.00693373
18	.00276736				
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	4.78461538	1.00000000	1.30229347
1	.89599999	1.07131620	4.42190382	.60599999	1.54099769
2	.75399999	.94801089	3.58511965	.36699999	1.35372978
3	.60099999	.81859189	2.80872289	.22200000	1.23609502
5	.33299999	.47770690	1.50444910	.08100000	.71905290
8	.12700000	.18090521	.60319789	.01799999	.25426784
12	.03000000	.04701070	.13375472	.00200000	.06184753
18	.00300000	.00393811	.01047686		.00556616
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
721	1000	28	2541	12.025300

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
3.000000	1.000000	.000010	1.000000	4.600000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.026000	.057925	.008059
2				.024000	.044276	.005679
3				.015000	.025879	.004557
4				.012000	.022366	.006321
5				.017000	.040731	.017709
6				.013000	.022636	.015255
7				.008000	.018036	.015291
8				.008000	.016820	.014992
9				.024000	.040398	.036885
10				.008000	.029610	.028322

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.010000	.038197	.022817
2				.011000	.042017	.016232
3				.016000	.050929	.023789
4				.014000	.044563	.030764
5				.016000	.050929	.027914
6				.008000	.025465	.017100
7				.008000	.025465	.019875
8				.013000	.024828	.014792
9				.016000	.030558	.021722
10				.014000	.026738	.027404
11				.010000	.019099	.024364
12				.019000	.009072	.028217

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.155000	.318677	.153069	003943	.960572		.845000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
4604.402618		0.76308

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
722	3.00000000	.86603000	.00001010	2B

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.04707201	.05118553	.03885001	.03098154	.03336003
1	.16026257	.12203950	.06610771	.07999327	.11157846
2	.15309722	.14005755	.08628953	.09075349	.10586472
3	.12102301	.12811195	.07206684	.06382547	.03408489
5	.11280947	.07836948	.04447613	.03981952	.06172722
8	.03429516	.02717316	.02173644	.01433644	.01048107
12		.00335731	.00169289	.00243696	.00180498
18	.00341103	.00328093			.00161951
24					

INCHES	6	7	8	9	10
	.04863703	.03192603	.01577002	.03557301	.04381802
1	.12595677	.09868879	.07454547	.09078064	.13538681
2	.15227112	.08973624	.07032178	.09548116	.12826547
3	.10685406	.08019494	.07621746	.06738980	.12089544
5	.05770423	.03328143	.03941563	.04636214	.05093246
8	.01668323	.00579772	.01168829	.01608128	.01350559
12	.00148530	.00264631	.00381453	.00223095	.00110109
18				.00207267	
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.03527068	.04801027	.01620717	.01710955	.05449589
2	.03441463	.03038094	.03646570	.03618866	.07224114
3	.03320328	.04874508	.04322094	.04807698	.02785277
5	.03175371	.02853873	.01502898	.02817477	.04478864
8	.00804242	.01338950	.01325231	.00900950	.00721697
12		.00230572	.00169289	.00243696	
18					
24					

INCHES	6	7	8	9	10
1	.07639064	.07031904	.06490876	.05748575	.11340776
2	.09908953	.05693732	.05173208	.07510072	.12146221
3	.06681724	.05046913	.07225643	.06023256	.10775753
5	.03449730	.02725603	.03225738	.03717814	.05093246
8	.01453280	.00418580	.01168829	.01465168	.01350559
12			.00381453	.00223095	.00110109
18				.00207267	
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.15469441	5.52476864	1.15469441	1.52517354
1	.87499999	1.20138909	4.87066545	.64778356	1.71312357
2	.70599999	.97658699	3.63436991	.36257405	1.47471232
3	.52699999	.76185817	2.65182909	.20322621	1.07389009
5	.27099999	.39391434	1.22594126	.06350819	.62840589
8	.08300000	.11986713	.33925118	.01039224	.18217064
12	.01100000	.01358215	.03786791		.02057033
18	.00100000	.00207267	.00898794		.01038414
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
722	1000	28	θφ	13.885547

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
3.000000	.866030	.000010	1.154694	5.311594

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.025000	.040766	.005672
2				.027000	.044328	.005686
3				.024000	.033645	.005924
4				.016000	.026831	.007583
5				.023000	.028891	.012561
6				.024000	.042121	.028386
7				.014000	.027649	.023441
8				.010000	.013657	.012173
9				.021000	.030807	.028128
10				.013000	.037948	.036298

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.031000	.059205	.024454
2				.021000	.040107	.016537
3				.027000	.051566	.027651
4				.028000	.053476	.025393
5				.016000	.030558	.027224
6				.015000	.028648	.023025
7				.019000	.036287	.030491
8				.021000	.040107	.030618
9				.003000	.005730	.011910
10				.003000	.005730	.009209
11				.007000	.013369	.046981
12				.006000	.011459	.043259

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.197000	.326643	.165852	004910	.950902		.803000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
4604.405236		0.74765

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
723	3.00000000	.70711000	.00001010	**28**

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.06887201	.07431701	.04342952	.05680755	.04877955
1	.20441083	.12267653	.09902924	.08588277	.10566871
2	.17796682	.17217354	.08225846	.06772089	.11662181
3	.15298588	.11982687	.07304024	.07756944	.07782770
5	.07999813	.04697590	.01458016	.04220522	.04117994
8	.01226865	.03064480	.00945097	.01400871	.00810260
12	.00279750	.00611446	.00124297	.00800000	
18					
24					

INCHES	6	7	8	9	10
	.09538604	.04786603	.02243054	.05979151	.04014801
1	.17672287	.13573118	.08378321	.10232320	.21641110
2	.14834339	.06579310	.09011382	.11379495	.17605340
3	.11379893	.06013379	.07502658	.08100598	.12489389
5	.05097113	.04185959	.04145761	.03673129	.04147475
8	.01269250	.00260339	.00790498	.00729656	.01741654
12	.00329546	.00213443	.00149372	.00134269	.00410900
18					.00109379
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.02128012	.01981669	.02848776	.03566007	.04163428
2	.04348145	.06137934	.03808207	.02930701	.05441398
3	.04960335	.04211027	.03539746	.03642418	.03459563
5	.02823461	.01838645	.00819753	.01671018	.03231652
8	.00662876	.01717181	.00684574	.00279897	.00529746
12		.00308811			
18					
24					

INCHES	6	7	8	9	10
1	.06287472	.08459601	.05035837	.07576517	.18982293
2	.07775556	.04684092	.06293486	.07985573	.15345213
3	.07798474	.04342533	.04782511	.05873845	.11661338
5	.03950317	.02962765	.02876266	.03557284	.03895029
8	.00606372	.00260339	.00790498	.00729656	.00941654
12	.00329546	.00213443	.00149372	.00134269	.00410900
18					.00109379
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	6.76643716	1.41420712	1.96078852
1	.83199999	1.30608602	5.47806686	.69578990	2.02842954
2	.64199999	.98974117	3.62723937	.34223813	1.55307829
3	.45399999	.71100854	2.41807223	.16829064	1.12439995
5	.19600000	.31585972	1.00802656	.03959779	.47703151
8	.04900000	.07627056	.19187848	.00424263	.12663233
12	.01100000	.01546340	.05018396		.03053022
18	.00100000	.00109379	.00497150		.00109379
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
723	1000	2B	$\theta\phi$	17.006264

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
3.000000	.707110	.000010	1.414207	6.505353

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.036000	.048700	.006776
2				.039000	.052550	.006740
3				.025000	.030709	.005408
4				.027000	.040169	.011352
5				.022000	.034492	.014997
6				.036000	.067448	.045454
7				.020000	.033847	.028696
8				.010000	.015861	.014137
9				.029000	.042279	.038603
10				.015000	.028389	.027155

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.028000	.053476	.018743
2				.039000	.074484	.026417
3				.034000	.064935	.027062
4				.029000	.055386	.024291
5				.013000	.024828	.017325
6				.025000	.047746	.025817
7				.029000	.055386	.035295
8				.024000	.045836	.027615
9				.009000	.017189	.047998
10				.010000	.019099	.043466
11				.008000	.015279	.037665
12				.011000	.021008	.048970

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.259000	.394446	.199317	0.06298	.937013		.741000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
4604.405236		0.72955

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
724	3.00000000	.34202000	.00001010	2B

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.07582701	.08332201	.05256650	.08425450	.04923802
1	.14042075	.24631068	.13358159	.10668645	.13075017
2	.18744741	.13555850	.11668297	.06848675	.09695494
3	.12346620	.08681165	.05520919	.05408069	.04113134
5	.02205123	.02528122	.02476565	.01317993	.01513854
8	.00301531	.00729655	.00253427	.00258115	.00573952
12			.00262135		
18					
24					

INCHES	6	7	8	9	10
	.15400348	.08389403	.08323303	.10244101	.09411549
1	.16738275	.17751148	.07452169	.16666915	.26553254
2	.10396326	.07753897	.08383404	.10349804	.12220202
3	.07114094	.05032523	.04963805	.06837034	.04079054
5	.01800735	.01457548	.01967987	.02073002	.00804581
8	.00318780	.00342362	.00485905	.00256836	
12			.00167855		
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.01788688	.07571637	.05603492	.05309460	.07618822
2	.06666349	.04837918	.05607996	.03976231	.05621727
3	.05737096	.03188887	.02441739	.03562280	.02063322
5	.01246765	.00981387	.01934962	.01160048	.01286033
8	.00130778	.00264773	.00147127	.00258115	.00421846
12					
18					
24					

INCHES	6	7	8	9	10
1	.10990760	.09382938	.06410344	.10049808	.24489343
2	.06421415	.05616874	.06924974	.08566121	.10635974
3	.04331576	.05032523	.04585399	.06603948	.03596182
5	.01356912	.01457548	.01483844	.01941548	.00804581
8	.00318780	.00233182	.00485905	.00256836	
12			.00167855		
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	13.98928537	2.92380562	3.75069060
1	.66299999	1.56755202	6.11894223	.67539908	2.28476635
2	.41899999	.80371749	2.60986961	.15496171	1.25112859
3	.25699999	.44651518	1.31023051	.03508567	.67604983
5	.08100000	.13653629	.35375273		.18145511
8	.01800000	.02517340	.06716592		.03520564
12	.00100000	.00167855	.00686492		.00429990
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
724	1000	2B	$\theta\phi$	35.159640

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
3.000000	.342020	.000010	2.923806	13.449506

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.042000	.025934	.003608
2				.048000	.028498	.003655
3				.033000	.017979	.003166
4				.042000	.028817	.008144
5				.032000	.016840	.007322
6				.068000	.052672	.035497
7				.033000	.028693	.024327
8				.021000	.028467	.025373
9				.036000	.035037	.031990
10				.043000	.032189	.030790

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.061000	.116501	.019227
2				.028000	.053476	.009261
3				.038000	.072574	.012741
4				.063000	.120321	.023155
5				.026000	.049656	.017161
6				.029000	.055386	.020505
7				.032000	.061115	.017710
8				.062000	.118411	.052049
9				.006000	.011459	.013128
10				.006000	.011459	.013355
11				.014000	.026738	.027743
12				.033000	.063025	.106034

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.398000	.295127	.173872	011519	.884810		.602000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
4604.405236		086824

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
725	5.00000000	1.00000000	.00001010	2A

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.02305278	.03302448	.01615110	.01372158	.02767418
1	.09824481	.08082484	.06683546	.04893807	.05715192
2	.12281677	.13783911	.05131597	.04856152	.06735085
3	.13189795	.10491334	.04920028	.03380290	.09745150
5	.11329724	.07338757	.04503058	.06494017	.05697098
8	.07162783	.05236909	.04145150	.01191812	.02139308
12	.01648532	.01147249	.00848225	.00721985	.00928081
18		.00176803			
24					

INCHES	6	7	8	9	10
	.03406360	.04124950	.01899531	.01790080	.02846602
1	.09657103	.08315148	.07855673	.06691787	.12214480
2	.06367223	.09876002	.09892620	.08127068	.16117505
3	.08098135	.14643125	.10513469	.09437840	.15281279
5	.06490475	.08670672	.06738425	.11679856	.13271988
8	.02291178	.06380558	.03932780	.03262645	.05206315
12	.02480923	.02238569	.01749298	.01721748	.01540400
18		.00128271		.00225581	.00201965
24			.00349983		.00118348

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.00905654	.01274441	.02006205	.01514334	.02294339
2	.02457556	.04373711	.01856582	.01607603	.03376795
3	.02909830	.03392315	.01388640	.01658936	.04988194
5	.02917143	.01312952	.01091555	.04439130	.03136656
8	.01112942	.02347930	.01343995	.00439409	.01607649
12	.01031587	.00724438	.00119440	.00620457	.00128081
18		.00176803			
24					

INCHES	6	7	8	9	10
1	.05897973	.06625379	.05951866	.04269776	.10485725
2	.04105066	.07805283	.07567432	.05918712	.13306200
3	.03839104	.11525557	.08067485	.07391298	.12710187
5	.04255656	.07913398	.05594336	.07469287	.11988714
8	.01683333	.04886164	.03932780	.02471152	.05031890
12	.02005654	.01716680	.01504863	.01721748	.01540400
18		.00128271		.00225581	.00201965
24			.00349983		.00118348

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	5.76923077	1.00000000	1.23284030
1	.92899999	1.09925691	5.58362749	.68699999	1.48633701
2	.81999999	.99574939	4.69883175	.47199999	1.40368841
3	.70599999	.90271547	4.07059285	.32399999	1.32100446
5	.47299999	.65418828	2.78327192	.15300000	.97514072
8	.22100000	.29757245	1.18234324	.04899999	.45849439
12	.07700000	.12213348	.45408357	.01099999	.16125009
18	.00700000	.00832620	.03481130	.00100001	.00832620
24	.00200000	.00468330	.02134727		.00468330

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
725	1000	2A	2541	9.010686

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
5.000000	1.000000	.000010	1.000000	5.800000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.017000	.023053	.002544
2				.023000	.033024	.003359
3				.009000	.016151	.002256
4				.009000	.013722	.003076
5				.012000	.027674	.009543
6				.013000	.034064	.018206
7				.021000	.041249	.028448
8	.001000	.005915	.004385	.008000	.018995	.014083
9				.009000	.017901	.014506
10	.001000	.001187	.001125	.013000	.028466	.026994

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.014000	.053476	.012506
2				.013000	.049656	.024962
3				.018000	.057296	.019819
4	.001000	.003183	.003582	.012000	.038197	.01987
5				.006000	.019098	.012039
6				.009000	.028648	.015299
7				.010000	.031831	.018435
8				.011000	.021008	.014172
9				.013000	.024828	.023061
10				.008000	.015279	.021268
11				.006000	.011459	.019551
12	.001000	.000477	.002094	.014000	.006684	.021717

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGO. TRAN. FACTC
.002000	.005511		.002000	.007102	.005511	.000121

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.134000	.254299	.123014	0.03061	.968181	.038000	.826000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
5805.502618	3.02452	1.14205

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
726	5.00000000	.86603000	.00001010	2A

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.03899901	.04297250	.01699353	.01111650	.02141953
1	.13386523	.07015014	.04730312	.05850394	.03912353
2	.17706216	.11534050	.06021310	.05616178	.05468955
3	.13662812	.12002190	.08010840	.05689563	.03865458
5	.09924217	.07042337	.03048884	.04817578	.03499359
8	.05945422	.05143570	.01909386	.02356025	.01186541
12	.00743065	.00669517	.00250191	.00137396	.00259448
18	.00635124	.00800000	.00114678		
24					

INCHES	6	7	8	9	10
	.02586052	.02863651	.03912803	.03041401	.03892903
1	.09093324	.10816816	.11861731	.10427028	.15395887
2	.07685630	.13989338	.11985536	.10738346	.19298506
3	.08680949	.10601995	.08647358	.12146698	.14344653
5	.04927510	.07097353	.08485404	.07768476	.10712511
8	.02381992	.04758100	.04386730	.02583698	.05016187
12	.01473873	.02075418	.01117655	.00672571	.01149170
18	.00139352	.00133445			
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.01302022	.00806716	.01698748	.01496377	.01676393
2	.04865427	.02145490	.02274501	.01385000	.02583144
3	.02735151	.03705527	.02750240	.03074763	.02624642
5	.03078418	.02332467	.01181320	.02390165	.01928690
8	.03184766	.00623093	.01762248	.01421898	.00800000
12	.00275015	.00463151	.00250191		.00129889
18	.00114677		.00114678		
24					

INCHES	6	7	8	9	10
1	.05315521	.07381326	.08535877	.07336251	.11662290
2	.05071059	.09312133	.09247155	.09290321	.17060357
3	.04872241	.07688195	.06307463	.10558555	.13570868
5	.03169543	.05255441	.07363341	.06530630	.10266153
8	.01882291	.03309035	.04134566	.02583698	.04512884
12	.01473873	.01466391	.00834337	.00672571	.01149170
18	.00139352	.00133445			
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.15469441	6.66169852	1.15469441	1.44101745
1	.92099999	1.22035719	6.28014448	.74824198	1.67313579
2	.78199999	1.11731752	5.30273526	.48497165	1.58541231
3	.64999999	.89295334	4.00122148	.31407688	1.29060203
5	.40599999	.56659685	2.41376644	.13163516	.80487144
8	.18300000	.27794031	1.03839612	.03579553	.39247205
12	.04300000	.07291937	.28211818	.00577347	.09125651
18	.00400000	.00502153	.01087436		.01822599
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
726	1000	2A	$\theta\phi$	10.404589

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
5.000000	.866030	.000010	1.154694	6.697228

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.022000	.033774	.003727
2				.020000	.037215	.003786
3				.012000	.014717	.002055
4				.008000	.009627	.002158
5				.008000	.018550	.006397
6				.010000	.022396	.011970
7				.019000	.024800	.017103
8				.019000	.033886	.025122
9				.018000	.026339	.021344
10				.020000	.033714	.031970

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.022000	.042017	.020432
2				.023000	.043927	.018788
3				.018000	.034377	.018654
4				.028000	.053476	.026283
5				.015000	.028648	.027350
6				.012000	.022918	.019381
7				.009000	.017189	.020539
8				.014000	.026738	.017920
9				.004000	.007639	.004065
10				.004000	.007639	.027832
11				.002000	.003820	.016530
12				.005000	.009549	.022164

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
5805.505236						

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.156000	.255019	.125632	0.04722	.952781	.034000	.810000

MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
	1.51336

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
727	5.00000000	.70711000	.00001010	**2A**

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.04741803	.03275003	.03076002	.02371753	.03696652
1	.13471045	.08152732	.05573901	.05986251	.07602968
2	.13227205	.15343181	.10390762	.05110569	.06096783
3	.18868607	.11600064	.07845727	.05318637	.06483323
5	.07464819	.05468245	.04316436	.04424818	.02962329
8	.04030951	.05488139	.02192321	.01478208	.02747299
12	.00458011	.00286812	.00437889		.00354199
18					
24					

INCHES	6	7	8	9	10
	.07637949	.03657951	.02034652	.02831799	.06428399
1	.06974460	.11159066	.10987425	.13870394	.15512437
2	.10404673	.14668994	.10809124	.12125833	.19596087
3	.09878732	.14497541	.13155977	.09876092	.15465284
5	.06062990	.06693078	.07158653	.04914333	.10133345
8	.02059403	.03376502	.02127581	.01315966	.03369040
12	.01702091	.00978370	.00585217	.00831157	.01084762
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.01248428	.01374130	.01439774	.01834508	.02292168
2	.02637188	.03281539	.03783369	.02103673	.04101000
3	.04709069	.03558120	.03594634	.02386745	.04068713
5	.02514186	.01321647	.01732723	.01785179	.01769769
8	.01224112	.02465717	.00991931	.01212756	.01348801
12			.00215313		.00208445
18					
24					

INCHES	6	7	8	9	10
1	.03671594	.06431519	.07506910	.11372716	.13481620
2	.04708755	.09676567	.08042965	.10338194	.17527572
3	.04199324	.10624692	.10705850	.07161739	.13026359
5	.04057214	.04589458	.06915271	.04176833	.09797233
8	.01259403	.02578493	.02127581	.01208990	.03369040
12	.00868543	.00978370	.00585217	.00831157	.01084762
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	8.15888725	1.41420712	1.79824086
1	.86199999	1.33808747	6.92597341	.83155379	1.82446058
2	.72799999	1.15132389	5.39864321	.48931566	1.66704776
3	.58399999	.92743650	3.97472396	.28708405	1.41698388
5	.31999999	.48558964	2.04679725	.09899451	.69498496
8	.12200000	.19766712	.67667478	.01979890	.30165300
12	.03000000	.04913228	.21227612	.00141422	.06859929
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
727	1000	2A	$\theta\phi$	12.742976

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
5.000000	.707110	.000010	1.414207	8.202401

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBE+ OF SCATTERED NEUTRONS VS. ENE+GY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE +EFL. FACTOR
1				.029000	.033530	.003700
2				.021000	.023158	.002356
3				.022000	.021751	.003038
4				.014000	.016771	.003759
5				.019000	.026139	.009014
6				.034000	.054009	.028867
7				.016000	.025866	.017838
8				.009000	.014387	.010666
9				.013000	.020024	.016226
10				.029000	.045456	.043105

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1				.035000	.066845	.016911
2				.023000	.043927	.017938
3				.027000	.051566	.015151
4				.028000	.053476	.020722
5				.013000	.024828	.016071
6				.019000	.036287	.022217
7				.018000	.034377	.026439
8				.022000	.042017	.027239
9				.005000	.009549	.026912
10				.003000	.005730	.015287
11				.007000	.013369	.033467
12				.006000	.011459	.026292

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.206000	.281090	.138568	005091	.949088	.040000	.754000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
5805.505236		1.23567

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
728	5.00000000	.34202000	.00001010	2A

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.06169501	.03806852	.04435704	.04860951	.04170051
1	.15274669	.16022907	.07627959	.06757966	.08645677
2	.17069579	.10848573	.08867239	.05938216	.04891464
3	.13781737	.09093945	.02822700	.04906942	.05623864
5	.03597965	.01894125	.03526028	.01563525	.01976854
8	.00793607	.01105512	.01147170	.00463679	.00499409
12				.00135502	
18					
24					

INCHES	6	7	8	9	10
	.09243000	.16144402	.12044800	.09685551	.13684401
1	.20090547	.24137690	.21468945	.17069800	.28144667
2	.13667964	.13734888	.14196672	.13267250	.17928751
3	.07745270	.11992406	.09475467	.05476025	.09318831
5	.04139909	.06108965	.04344768	.03529840	.03864298
8	.00254807	.00530607	.00380476	.00123443	.01028758
12		.00403146			.00158763
18					
24					

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.02328017	.03879650	.01696308	.02282690	.02620466
2	.03555352	.04616920	.03541850	.03355176	.02672972
3	.04785671	.02834241	.01677583	.02483923	.03879877
5	.01650896	.01311307	.02007882	.00425283	.01489626
8	.00342969	.00292988	.00926975	.00238626	.00499409
12					
18					
24					

INCHES	6	7	8	9	10
1	.07107262	.12882571	.14233579	.12264477	.21740470
2	.08349112	.11214178	.08236131	.10177353	.14930836
3	.04669891	.07771656	.07492491	.05014627	.08363749
5	.02859824	.03180709	.02636976	.02548087	.03864298
8	.00127262	.00530607	.00212120	.00123443	.01028758
12		.00249433			.00158763
18					
24					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	16.86810937	2.92380562	3.74587690
1	.71499999	1.78398218	8.96930634	.97362729	2.62603554
2	.49899999	1.03104122	4.47149032	.32454245	1.52864838
3	.32399999	.59791791	2.30943021	.10818083	.91055269
5	.13200000	.23144412	.81531479	.01169521	.35715799
8	.02800000	.04323157	.12154797		.06327469
12	.00300000	.00408196	.01900837		.00697412
18					
24					

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
728	1000	2A	$\theta\phi$	26.345495

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
5.000000	.342020	.000010	2.923806	16.958073

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.035000	.021101	.002328
2				.021000	.013020	.001324
3				.024000	.015171	.00211
4				.026000	.016625	.003726
5				.022000	.014262	.004918
6				.053000	.031613	.016897
7				.066000	.055217	.038081
8				.044000	.041196	.030542
9				.028000	.033126	.026844
10				.046000	.046803	.044382

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE +EFL. FACT/STER
1				.038000	.072574	.010762
2				.034000	.064935	.009314
3				.034000	.064935	.013684
4				.057000	.108862	.021501
5				.018000	.034377	.011564
6				.022000	.042017	.016086
7				.030000	.057296	.019569
8				.068000	.129870	.056188
9				.010000	.019099	.024901
10				.009000	.017189	.021330
11				.013000	.024828	.026506
12				.032000	.061115	.095487

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.365000	.288135	.171161	0.11143	.888571	.038000	.597000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
5805.505236		1.52637

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
729	14.00000000	1.00000000	.00001010	2

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.01116390	.02605701	.01039400	.00894530	.00479271
1	.02651196	.04103210	.03604603	.01981326	.03119725
2	.05054442	.05269150	.03064117	.03063532	.05170329
3	.08177779	.03556425	.01783277	.02005108	.02165160
5	.05791194	.05695504	.02204964	.03176855	.02624525
8	.05085842	.04046118	.02954143	.01696022	.03180941
12	.02816374	.03279967	.02558749	.00641202	.01551467
18	.00817010	.00778230	.00382594	.00311378	.00270179
24	.00119840			.00122858	

INCHES	6	7	8	9	10
	.00882010	.01487209	.01438431	.02941440	.05657939
1	.02996550	.06259966	.05306422	.05909958	.17083380
2	.03919221	.06036795	.05925084	.05651555	.22695924
3	.02857255	.06976292	.05033949	.06245828	.29595745
5	.04019205	.05440683	.05006171	.07912825	.26728267
8	.03907656	.05693433	.05099800	.05861258	.24753539
12	.02363106	.03530094	.01817820	.02268759	.12853997
18	.00268558	.00718713	.01258831	.01660313	.06372325
24	.00262159	.00110091	.00465387	.00608012	.01727042

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.00104448	.00113660	.00353738	.00441149	.00579918
2	.00522662	.01741810	.00971390	.01184362	.01246863
3	.02381513	.01375899	.00217829	.01564677	.01097308
5	.01002530	.02000275	.00924063	.01114319	.01488615
8	.02540407	.00689836	.00887224	.00127227	.01662887
12	.00876195	.00956100	.01981491	.00239535	.00744299
18		.00522540	.00257271	.00161261	.00139689
24	.00119840			.00122858	

INCHES	6	7	8	9	10
1	.01157402	.03481720	.02893106	.04155394	.11547593
2	.00915171	.02368617	.03536842	.03989161	.20338027
3	.01357138	.02293151	.02901712	.04569090	.26915576
5	.02447121	.03225782	.03323118	.06562376	.25006896
8	.01335264	.02286361	.03350943	.04511181	.23666219
12	.00233173	.01441398	.01175798	.02143751	.12504805
18	.00135157	.00614529	.00458831	.01093811	.06212288
24	.00262159	.00110091	.00465387	.00608012	.01727042

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	7.00000000	1.00000000	1.18889143
1	.92600000	1.02628129	6.78706045	.77799999	1.30816337
2	.84199999	.97314906	6.19107181	.60500000	1.26350149
3	.75299999	.91673894	5.71922799	.47000000	1.15396818
5	.59899999	.75495095	4.47997493	.28400000	.97000194
8	.40399999	.54357547	3.13337194	.13299999	.75578754
12	.21200000	.27096544	1.47764373	.04800000	.38481536
18	.07700000	.10595378	.61127021	.01000000	.13838132
24	.02700000	.03615390	.20184359	.00200000	.03615390

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
729	1000	2	2541	6.036174

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
14.000000	1.000000	.000010	1.000000	7.000000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.001000	.001187	.000108	.008000	.011164	.001021
2				.012000	.026057	.002196
3				.008000	.010394	.001203
4	.001000	.001262	.000234	.003000	.008945	.001661
5				.004000	.004793	.001369
6	.002000	.002717	.001203	.006000	.008820	.003906
7	.001000	.001120	.000640	.008000	.014872	.008498
8	.003000	.004787	.002941	.010000	.014384	.008836
9	.004000	.006051	.004408	.012000	.029414	.021430
10	.013000	.017381	.016884	.024000	.056579	.054963

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.002000	.007639	.006121	.005000	.019099	.006452
2	.002000	.007639	.007901	.007000	.026738	.018818
3	.005000	.015915	.014003	.010000	.031831	.015653
4	.001000	.003183	.000345	.014000	.044563	.017550
5	.004000	.012732	.011479	.005000	.015915	.011961
6	.001000	.003183	.003125	.009000	.028648	.022554
7	.003000	.009549	.013403	.008000	.025465	.019204
8	.003000	.005730	.005448	.009000	.017189	.014497
9	.002000	.003820	.005985	.007000	.013369	.012665
10	.002000	.003820	.006599	.008000	.015279	.019816
11				.002000	.003820	.009884
12				.011000	.005252	.019761

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.027000	.028420	.002000	.025000	.034505	.026420	0.01261

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.095000	.185423	.105084	0.02167	.963723	.232000	.646000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
7006.802618	7.06046	3.19307

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
730	14.00000000	.86603000	.00001010	A

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.01907452	.01307903	.01157952	.01157952	.00894152
1	.05303124	.03983793	.04071525	.03498500	.03570282
2	.09172234	.04765962	.03668682	.04568618	.03194995
3	.06155229	.04834663	.03552112	.02233899	.03811871
5	.05171941	.04781940	.02173050	.02078161	.02880021
8	.06950746	.02940086	.01823993	.01407255	.02393037
12	.01375201	.01587564	.00348222	.01055489	.00963508
18	.01921834	.01080235	.00226193		
24	.00111273				.00110498

INCHES	6	7	8	9	10
	.01754752	.04015856	.05470705	.03684501	.03768451
1	.02844262	.08558139	.07285505	.07321879	.24782426
2	.03737606	.08603943	.06035240	.09222886	.33340385
3	.05443459	.08655027	.05466179	.10174054	.36836123
5	.03883806	.08444784	.04124422	.06344944	.34505852
8	.02634339	.04844649	.03850715	.04791119	.22011459
12	.01590486	.01653745	.01048892	.04171765	.12254319
18	.00394990	.00233321	.00232836	.00949253	.03581146
24		.00101071	.00100719	.00149928	.01594172

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.00184781	.00386742	.00232197	.00920877	.00446296
2	.00654380	.01179196	.00561851	.01123579	.01148626
3	.01738385	.01393467	.00581860	.00481125	.01569057
5	.01691543	.00589284	.00728554	.00653932	.01021989
8	.01667116	.01269946	.00843662	.00488954	.01759669
12	.00244283	.00422847	.00102729	.00635076	.00483402
18	.01229053	.00952386	.00125630		
24	.00111273				.00110498

INCHES	6	7	8	9	10
1	.00120193	.03191964	.03934305	.02850013	.18993667
2	.01119887	.03863635	.03290583	.03873650	.27736085
3	.02773647	.05220652	.04006459	.05991964	.30267457
5	.02384559	.03756334	.03001532	.04831797	.30526969
8	.01239243	.02958683	.02687398	.03764854	.18786582
12	.00360687	.01201315	.00803216	.03227466	.11228754
18	.00119355	.00118051	.00232836	.00694803	.03581146
24		.00101071	.00100719	.00149928	.01594172

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.15469441	8.08286087	1.15469441	1.39622221
1	.93099999	1.17632177	7.84097195	.86371142	1.57590577
2	.83099999	1.09098891	7.01195864	.64547418	1.50857969
3	.74399999	1.02290299	6.31054239	.48266226	1.35428844
5	.55599999	.76206343	4.63189296	.27019849	1.01408770
8	.34799999	.46782111	2.62770222	.11316005	.64963404
12	.16500000	.22173858	1.30033774	.03464082	.29513273
18	.04800000	.07630608	.35368611	.00577347	.09197156
24	.01700000	.02167660	.13002040		.02167660

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
730	1000	2	$\theta\phi$	6.969937

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
14.000000	.866030	.000010	1.154694	8.082861

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.001000	.001069	.000098	.011000	.016519	.001510
2				.009000	.011327	.000955
3				.005000	.010028	.001160
4				.005000	.010028	.001862
5	.001000	.001069	.000305	.007000	.007744	.002212
6				.009000	.015197	.006730
7	.001000	.000885	.000505	.014000	.034778	.019873
8	.001000	.000885	.000543	.015000	.047378	.029104
9	.001000	.001069	.000779	.019000	.031909	.023248
10	.012000	.013981	.013581	.020000	.032636	.031703

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.006000	.011459	.008568	.015000	.028648	.011226
2	.003000	.005730	.004152	.015000	.028648	.018722
3	.001000	.001910	.001487	.013000	.024828	.014660
4	.004000	.007639	.006531	.018000	.034377	.014518
5				.008000	.015279	.015298
6	.001000	.001910	.003153	.008000	.015279	.011356
7				.004000	.007639	.010526
8	.002000	.003820	.006306	.014000	.026738	.023872
9				.002000	.003820	.011600
10				.003000	.005730	.021104
11				.005000	.009549	.027673
12				.009000	.017189	.045493

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.017000	.015812		.017000	.018956	.015812	.000979

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.114000	.217544	.118359	0.02213	.968072	.212000	.657000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
7006.805236	8.06324	2.71835

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
731	14.00000000	.70711000	.00001010	A

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.01980303	.01956303	.02219054	.01107403	.04022853
1	.05356476	.03557745	.02056050	.02745299	.01627429
2	.06064522	.04791126	.02797388	.02386093	.03822194
3	.08533737	.08213693	.03490000	.03593796	.06015422
5	.06651705	.04544002	.02637765	.02559488	.01553322
8	.05273790	.03522186	.01656534	.03246613	.01708663
12	.01090700	.01209999	.01571176	.01857263	.00434930
18	.00338291	.00149489	.00247734	.00409133	.00242220
24			.00100358		

INCHES	6	7	8	9	10
	.02241355	.03727004	.05595602	.04957803	.08773153
1	.05278681	.07221591	.06028773	.10268595	.31520036
2	.06337768	.06091288	.06709970	.09728679	.36185006
3	.04120107	.07510047	.08366283	.07805901	.43759612
5	.06130576	.05545778	.04587526	.09552985	.34581471
8	.02666745	.03218033	.03552365	.04187065	.23239758
12	.01092996	.02034863	.01474327	.03533727	.10010725
18	.00497191	.00500148	.00225763	.00330643	.02174037
24		.00104368			.00889921

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.00339367		.00143807	.00622972	.00454281
2	.00700158	.01495435	.00372535	.00892534	.01230414
3	.01356025	.01877035	.00701049	.00991027	.02458528
5	.00785619	.00744296	.00745763	.01459209	.01044427
8	.01464653	.01572618	.00577729	.01579951	.00503657
12	.00681133	.00324716	.00707487	.01016493	.00298243
18	.00109256			.00102215	.00118399
24			.00100358		

INCHES	6	7	8	9	10
1	.01134069	.02033166	.02141419	.03507869	.23245288
2	.02795986	.02385995	.04431894	.05672151	.30676340
3	.01870862	.03572744	.03863560	.05597072	.36728372
5	.03547892	.04012481	.03400589	.05856317	.30718321
8	.01457860	.02421046	.02298105	.02570770	.20529650
12	.00412210	.01422126	.01474327	.02358202	.08891803
18	.00218596	.00193701	.00225763	.00330643	.02174037
24		.00104368			.00889921

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	9.89944987	1.41420712	1.75895985
1	.89299999	1.32758158	8.96313276	.99135921	1.74796594
2	.77599999	1.20091011	7.72094133	.69437569	1.54351603
3	.66799999	1.07665000	6.67190706	.48648725	1.50057325
5	.48499999	.76215015	4.58608004	.23900100	1.02244720
8	.27799999	.43178442	2.43104645	.08202402	.60474154
12	.12200000	.19566631	1.03717965	.01979890	.26290598
18	.02800000	.03614030	.20592600	.00141422	.05256068
24	.00900000	.01094647	.06507009		.01094647

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
731	1000	2	$\theta\phi$	8.536400

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
14.000000	.707110	.000010	1.414207	9.899450

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.011000	.014003	.001280
2				.013000	.013833	.001166
3	.001000	.000722	.000084	.012000	.015691	.001816
4				.004000	.007831	.001454
5				.016000	.028446	.008127
6				.011000	.015849	.007019
7	.001000	.000722	.000413	.019000	.026354	.015059
8				.022000	.039567	.024305
9				.024000	.035057	.025542
10	.007000	.006172	.005996	.033000	.062036	.060263

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.005000	.009549	.004968	.022000	.042017	.013497
2				.013000	.024828	.008706
3	.001000	.001910	.001619	.029000	.055386	.026752
4	.002000	.003820	.003238	.013000	.024828	.010296
5	.001000	.001910	.002575	.009000	.017189	.013134
6				.015000	.028648	.015281
7				.013000	.024828	.020233
8				.025000	.047746	.041992
9				.004000	.007639	.018829
10				.006000	.011459	.020997
11				.005000	.009549	.034006
12				.011000	.021008	.055175

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.009000	.006492		.009000	.007617	.006492	.000443

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.165000	.258667	.146032	.003388	.961688	.213000	.613000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
7006.805236	6.89474	2.87443

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
732	14.00000000	.34202000	.00001010	2

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.02610503	.03935102	.01853103	.02419105	.02821153
1	.05573110	.09558375	.03559901	.03227981	.04777716
2	.06269918	.04418093	.04352116	.03289458	.03021728
3	.08075698	.06709534	.04018617	.02960701	.01613345
5	.03118457	.02440308	.01842622	.02907847	.01719789
8	.02749173	.02672237	.00776889	.01087854	.00540309
12	.01881183	.00886419	.01447399	.00340731	.00831632
18					.00736230
24				.00114532	

INCHES	6	7	8	9	10
	.03976551	.08066751	.08403400	.10162652	.36092200
1	.07151273	.09598006	.06909486	.11747376	.65560858
2	.04702915	.12077641	.05805229	.10083542	.66292590
3	.06509571	.09766236	.04998673	.07046763	.48829988
5	.04210663	.03374379	.04980724	.04924085	.21658099
8	.01922642	.01789575	.02015312	.01753526	.07922031
12		.00932647	.00495786	.00446615	.03140637
18	.00562110			.01023580	.00413426
24					.00240066

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.00122513	.01407717	.00399085	.01720250	.01266653
2	.00747103	.01199621	.01923485	.00904704	.01482736
3	.02512144	.01433933	.01535457	.01493005	.01109576
5	.00962566	.00709421	.01077808	.01242413	.01155823
8	.00480818	.00973146	.00478385	.00957255	.00540309
12	.00569631			.00208090	.00565930
18					
24				.00114532	

INCHES	6	7	8	9	10
1	.01729846	.04731943	.02745648	.04503958	.44299922
2	.02790727	.06065049	.03278082	.05652103	.50841689
3	.02219144	.07579901	.03780824	.04854734	.39836003
5	.02947146	.02942799	.03569731	.04636748	.19524207
8	.00992220	.01541671	.01828268	.01618415	.07814297
12		.00932647	.00495786	.00446615	.02906962
18	.00461556			.01023580	.00413426
24					.00240066

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	20.46663937	2.92380562	3.68792917
1	.73799999	2.02977826	13.51515814	1.40050287	2.67714373
2	.57399999	1.41840448	9.04229160	.66955148	1.87268377
3	.45499999	.98516582	5.88123646	.32161862	1.32690986
5	.25199999	.46078175	2.52007646	.07309517	.58486487
8	.10300000	.17809545	.86720025	.00584760	.23814310
12	.03800000	.06125660	.29756902		.10403048
18	.00800000	.01898563	.09121475		.02735346
24	.00300000	.00354598	.01812384		.00354598

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
732	1000	2	$\theta\phi$	17.648600

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
14.000000	.342020	.000010	2.923806	20.466639

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	5.0800	7.6200	10.1600
15.2400	15.2400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.015000	.008928	.000816
2				.018000	.013459	.001134
3				.013000	.006338	.000733
4	.001000	.000422	.000078	.010000	.008274	.001537
5				.019000	.009649	.002757
6				.019000	.013601	.006023
7				.039000	.027590	.015766
8				.037000	.028741	.017655
9				.044000	.034758	.025324
10	.002000	.000771	.000749	.109000	.123443	.119916

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.001000	.001910	.000648	.040000	.076394	.014466
2				.017000	.032468	.006372
3				.027000	.051566	.009190
4	.002000	.003820	.000933	.046000	.087853	.022085
5				.017000	.032468	.009054
6				.015000	.028648	.010752
7				.028000	.053476	.019214
8				.064000	.122231	.063450
9				.004000	.007639	.006612
10				.006000	.011459	.013131
11				.014000	.026738	.041839
12				.045000	.085943	.149880

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.003000	.000828		.003000	.001193	.000828	.000103

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.323000	.274781	.191661	.009633	.902633	.203000	.471000

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
7006.805236	4.80541	4.17545

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
43-S	.50000000	1.00000000	.00001010	**2E**

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.07078264	.01725699	.13560928	.03453133	.06192149
2	.18654463	.02980581	.12358909	.04776150	.06131923
3	.11266615	.01281525	.05488815	.01865153	.02112448
4	.05353334	.00792792	.02691993	.00670959	.01114980
5	.01732159	.00343233	.00917431	.00227147	.00248827
6	.00479621	.00073551	.00215795	.00034426	.00061671
7	.00132921	.00015246	.00041375	.00007838	.00015573
8	.00032006	.00004032	.00011422	.00002705	.00003558
9	.00004769	.00000462	.00001787	.00000317	.00000630

INCHES	6	7	8	9	10
	.02486988	.01677388	.02132179	.06033290	.08038709
2	.05137761	.07825332	.04669768	.03960773	.07916706
3	.01247323	.01769351	.01421534	.01882142	.01864344
4	.00456511	.00489757	.00490997	.00729031	.00644432
5	.00140647	.00152956	.00113236	.00116291	.00123111
6	.00032138	.00036714	.00025007	.00018747	.00011582
7	.00008244	.00009625	.00004341	.00005944	.00003681
8	.00001754	.00002257	.00001202	.00001419	.00000421
9	.00000465	.00000341	.00000227	.00000283	.00000052

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
2	.07696792	.01317507	.07657571	.03349526	.04537072
3	.06284224	.00630890	.03340034	.01380199	.01535502
4	.03118883	.00484659	.02055716	.00510777	.00755119
5	.01042285	.00245909	.00616242	.00175269	.00200955
6	.00329906	.00052749	.00161148	.00030698	.00053114
7	.00090054	.00009670	.00028252	.00006173	.00013766
8	.00020869	.00002775	.00008488	.00001928	.00003251
9	.00004769	.00000462	.00001787	.00000317	.00000630

INCHES	6	7	8	9	10
2	.04429693	.05035135	.04643929	.03591879	.06983681
3	.01064846	.01479706	.01376615	.01687551	.01657076
4	.00348323	.00431384	.00463663	.00657270	.00466770
5	.00124228	.00134310	.00103780	.00098088	.00111660
6	.00029177	.00033864	.00024222	.00015622	.00009869
7	.00007328	.00008853	.00003863	.00005354	.00003585
8	.00001634	.00002228	.00001173	.00001387	.00000421
9	.00000465	.00000341	.00000227	.00000283	.00000052

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	2.40000000	1.00000000	1.50111341
2	.34799999	.52942785	.63786232	.03700001	.78112365
3	.15300000	.21136642	.21540164	.00700000	.30899250
4	.05824994	.09392565	.08338685	.00100001	.13534787
5	.01787498	.02852726	.02294831		.04115039
6	.00475763	.00740368	.00550292		.00989253
7	.00116011	.00176898	.00134534		.00244789
8	.00028292	.00044155	.00032832		.00060777
9	.00006371	.00009331	.00006809		.00009331

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
43-S	1000	2E	2541	14.756290

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.500000	1.000000	.000010	1.000000	2.400000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

5.0800	2.5400	2.5400	2.5400	2.5400	2.5400
2.5400	2.5400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.000032	.000049	.000013	.045500	.070783	.019170
2	.000003	.000005	.000001	.010000	.017257	.004458
3	.000012	.000018	.000004	.064125	.135609	.033337
4	.000003	.000003	.000001	.025062	.034531	.008489
5	.000003	.000007	.000002	.026000	.061921	.018318
6	.000004	.000005	.000002	.013000	.024870	.009430
7	.000003	.000003	.000002	.012000	.016774	.008387
8	.000002	.000002	.000001	.016000	.021322	.012438
9	.000002	.000003	.000002	.030000	.060333	.045250
10		.000001		.055000	.080387	.073688

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.000008	.000031	.000009	.026062	.099551	.051857
2	.000007	.000025	.000010	.037000	.141329	.085844
3	.000009	.000027	.000011	.033000	.105042	.070145
4	.000007	.000022	.000008	.028000	.089127	.054147
5	.000006	.000019	.000007	.019000	.060479	.030401
6	.000003	.000011	.000004	.022187	.070625	.037549
7	.000005	.000017	.000007	.020062	.063861	.034589
8	.000004	.000007	.000003	.026187	.050014	.031565
9	.000006	.000012	.000007	.028062	.053595	.041855
10	.000004	.000008	.000005	.019000	.036287	.032531
11	.000003	.000006	.000004	.017062	.032587	.031386
12	.000001	.000001	.000001	.021062	.010057	.025661

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.000064	.000029		.000064	.000096	.000029	.000004

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.296687	.523787	.232965	.079918	.920070	.003208	.700041

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
2402.202618	.032828	.134684

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
58-S	.50000000	.34202000	.00001010	2E

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.13148698	.03802146	.09293328	.04340736	.06613904
1	.25272189	.03625558	.20520373	.04894414	.09433010
2	.13150745	.02276977	.08078589	.02356473	.02144274
3	.04480845	.00501000	.02383655	.00505426	.00694198
4	.01438081	.00204440	.00545150	.00120038	.00161585
5	.00387546	.00044177	.00131860	.00023769	.00036365
6	.00077696	.00008087	.00025368	.00007007	.00008900
7	.00015649	.00001941	.00005395	.00001349	.00001398
9	.00000473	.00000044	.00000175	.00000045	.00000042

INCHES	6	7	8	9	10
	.05262329	.09624311	.09066747	.22795944	.40278079
1	.03845568	.11304246	.05398207	.10230223	.11461094
2	.01323188	.02069977	.01361704	.01441058	.01402150
3	.00477721	.00424560	.00325556	.00356337	.00185751
4	.00097135	.00119945	.00074530	.00066034	.00014589
5	.00023126	.00022151	.00009044	.00012168	.00001722
6	.00002615	.00003600	.00003247	.00002865	.00000103
7	.00000813	.00001015	.00000662	.00000408	.00000024
9	.00000035	.00000042	.00000034	.00000010	.00000004

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.09162147	.01608817	.11394926	.02637666	.06087430
2	.07150460	.01403389	.05717161	.01889073	.01765101
3	.02766779	.00338935	.01710854	.00373771	.00598034
4	.00925835	.00149912	.00380840	.00096741	.00134804
5	.00273799	.00033145	.00095833	.00017694	.00013710
6	.00056141	.00005239	.00018014	.00005410	.00002035
7	.00011303	.00001363	.00003914	.00001177	.00001193
9	.00000473	.00000044	.00000175	.00000045	.00000042

INCHES	6	7	8	9	10
1	.02736836	.08534005	.05016351	.08948620	.14111147
2	.01017457	.01852299	.01237657	.01296969	.01311731
3	.00427929	.00383673	.00303818	.00334304	.00182504
4	.00084900	.00106208	.00069219	.00065253	.00011588
5	.00019603	.00021397	.00008153	.00011879	.00001732
6	.00002434	.00003292	.00002907	.00002811	.00000168
7	.00000741	.00000960	.00000620	.00000408	.00000036
9	.00000035	.00000042	.00000034	.00000010	.00000004

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	INC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	7.01713350	2.92380562	4.00059120
1	.39299999	.68569941	.84268678	.02339046	1.08323926
2	.15399994	.24641388	.21498231		.35605135
3	.04881245	.07412652	.05955319		.10335049
4	.01353120	.02028310	.01522518		.02841528
5	.00325769	.00518850	.00370250		.00691929
6	.00067374	.00104387	.00074307		.00139488
7	.00014329	.00021705	.00015401		.00028550
9	.00000589	.00000905	.00000652		.00001215

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
58-S	1000	2E	2541	43.1445276

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
.5000000	.3420200	.0000101	2.9238056	7.0171334

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	2.5400	2.5400	2.5400	2.5400	2.5400
2.5400	5.0800				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0000029	.0000016	.0000005	.0634219	.0449712	.0121797
2	.0000002	.0000002	.0000001	.0161289	.0120499	.0031129
3	.0000013	.0000006	.0000002	.0555625	.0317850	.0078139
4	.0000002	.0000002	.0000001	.0215000	.0148462	.0036497
5	.0000003	.0000002	.0000001	.0397500	.0226209	.0066920
6	.0000002	.0000001	.0000001	.0257500	.0179982	.0068243
7	.0000003	.0000001	.0000001	.0400625	.0329171	.0164585
8	.0000003	.0000001	.0000001	.0373125	.0310101	.0180892
9	.0000001			.0635000	.0779667	.0584751
10				.1562500	.1377591	.1262792

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0000009	.0000035	.0000004	.0248281	.0948363	.0157845
2	.0000007	.0000027	.0000003	.0275000	.1050420	.0193522
3	.0000008	.0000025	.0000003	.0364531	.1160336	.0237218
4	.0000007	.0000023	.0000002	.0403164	.1283308	.0212827
5	.0000004	.0000013	.0000002	.0295625	.0941002	.0209030
6	.0000004	.0000013	.0000002	.0302656	.0963382	.0251893
7	.0000005	.0000017	.0000002	.0367500	.1169786	.0316666
8	.0000003	.0000006	.0000001	.0476250	.0909568	.0294968
9	.0000004	.0000008	.0000001	.0583125	.1113684	.0384274
10	.0000003	.0000005	.0000001	.0573750	.1095779	.0457466
11	.0000001	.0000002	.0000001	.0350000	.0668449	.0397380
12	.0000003	.0000002	.0000001	.0952500	.0454784	.0627785

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0000059	.0000012		.0000059	.0000032	.0000012	.0000032

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.5192383	.4239243	.2595745	.2128358	.7871514	.0005241	.4802317

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
24.02202618	.0153623	.2049500

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
127-S	1.00000000	1.00000000	.00001010	2D

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.09722984	.06329867	.04522455	.02266404	.02543346
2.50000	.18663644	.14247422	.05391276	.02582291	.03726493
5	.03828055	.02185092	.00438990	.00354236	.00459110
7.50000	.00290838	.00210592	.00035654	.00028871	.00040072
10	.00030250	.00017841	.00005904	.00002418	.00004513
12	.00004489	.00002558	.00000952	.00000506	.00000540
14	.00000614	.00000336	.00000105	.00000053	.00000068
16	.00000061	.00000036	.00000012	.00000006	.00000008
18	.00000002	.00000002			

INCHES	6	7	8	9	10
	.00938360	.02421706	.02419167	.05606893	.21007550
2.50000	.01651685	.05467906	.03228144	.07527333	.08126314
5	.00482789	.00521931	.00300330	.00610638	.00565003
7.50000	.00029937	.00037751	.00024443	.00072536	.00058428
10	.00003903	.00004538	.00002152	.00005991	.00004060
12	.00000423	.00000521	.00000277	.00000789	.00000454
14	.00000067	.00000058	.00000052	.00000097	.00000056
16	.00000006	.00000009	.00000006	.00000015	.00000006
18					

SCATTERED FLUX TRANS. PER NT. IN ENY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
2.50000	.07552159	.07093286	.03501842	.01263091	.02622991
5	.02190176	.01376552	.00236704	.00153934	.00357437
7.50000	.00152347	.00140994	.00020579	.00021882	.00028976
10	.00016071	.00010566	.00004267	.00001858	.00003693
12	.00002557	.00001528	.00000724	.00000406	.00000433
14	.00000376	.00000226	.00000080	.00000039	.00000054
16	.00000042	.00000026	.00000009	.00000006	.00000007
18	.00000002	.00000002			

INCHES	6	7	8	9	10
2.50000	.01211515	.04449726	.02633908	.06476507	.07413624
5	.00420213	.00467044	.00260393	.00541918	.00554918
7.50000	.00024151	.00031009	.00016585	.00066224	.00056401
10	.00003360	.00004072	.00001867	.00005391	.00003976
12	.00000360	.00000469	.00000225	.00000726	.00000434
14	.00000062	.00000051	.00000045	.00000091	.00000055
16	.00000006	.00000009	.00000006	.00000014	.00000006
18					

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	3.79999999	1.00000000	1.55886679
2.50000	.32300000	.47017651	.96276087	.02799999	.73412509
5	.04249998	.06659484	.08515791		.09766179
7.50000	.00361713	.00558747	.00757756		.00829123
10	.00035152	.00055022	.00070245		.00081572
12	.00005047	.00007864	.00009305		.00011507
14	.00000683	.00001071	.00001247		.00001507
16	.00000082	.00000132	.00000164		.00000168
18	.00000005	.00000008	.00000013		.00000008

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
127-S	1000	2D	2541	25.2709782

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
1.0000000	1.0000000	.0000101	1.0000000	3.8000000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

6.3500	6.3500	6.3500	6.3500	5.0800	5.0800
5.0800	5.0800				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1				.0467656	.0972298	.0163755
2				.0391250	.0632987	.0098279
3				.0212500	.0452246	.0084498
4				.0061250	.0226640	.0054274
5				.0115000	.0254335	.0080316
6				.0061250	.0093836	.0034571
7				.0141250	.0242171	.0114712
8				.0122500	.0241917	.0140057
9				.0292500	.0560689	.0413139
10				.1330000	.2100755	.1879623

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1		.0000001	.0000001	.0251328	.0960001	.0580033
2		.0000001	.0000001	.0265000	.1012223	.0627177
3		.0000001	.0000001	.0241328	.0768169	.0483062
4		.0000001	.0000001	.0306250	.0974822	.0583144
5		.0000001	.0000001	.0243750	.0775879	.0596099
6		.0000001	.0000001	.0248750	.0791794	.0590726
7			.0000001	.0231250	.0736090	.0643170
8				.0406250	.0775878	.0745603
9				.0327500	.0625477	.0666651
10				.0280000	.0534759	.0750760
11				.0172500	.0329450	.0393779
12				.0221250	.0105639	.0238050

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0000001	.0000002		.0000001		.0000002	

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.3195156	.5777873	.3063227	.1395106	.8604780	.0014172	.6790670

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
38.03402618		.4366315

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
59-S	1.00000000	.70711000	.00001010	2D

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.10138010	.11241931	.07409149	.02299492	.05884285
2	.22399151	.15369710	.06556243	.02373420	.03275613
3	.10022889	.07276368	.02083776	.01250195	.01850924
4.50000	.02728204	.01669280	.00418181	.00295217	.00355713
6	.00759271	.00421107	.00136780	.00082507	.00128810
7.50000	.00180373	.00108448	.00034646	.00011938	.00025407
9	.00037343	.00021521	.00006148	.00002075	.00003572
10.50000	.00008169	.00005267	.00001179	.00000561	.00000857
12	.00000802	.00000470	.00000298	.00000105	.00000199

INCHES	6	7	8	9	10
	.03917445	.05104577	.02430008	.07103719	.24967852
2	.02175003	.06311102	.02877654	.08106879	.06161895
3	.01315321	.01628172	.01136276	.02112328	.02703790
4.50000	.00231943	.00407949	.00428009	.00712552	.00432883
6	.00074462	.00118329	.00067834	.00132382	.00065462
7.50000	.00021485	.00023216	.00008643	.00024779	.00015387
9	.00003107	.00004965	.00002071	.00004882	.00003585
10.50000	.00000770	.00000406	.00000412	.00000892	.00000909
12	.00000122	.00000222	.00000146	.00000196	.00000194

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
2	.08598167	.07887676	.04828499	.01943848	.02632191
3	.04838490	.04459660	.01308387	.01064325	.01461637
4.50000	.01456870	.00957023	.00320584	.00217298	.00264649
6	.00405161	.00232088	.00099914	.00065893	.00112640
7.50000	.00097733	.00070483	.00026259	.00008250	.00020122
9	.00022659	.00014115	.00004765	.00001750	.00002726
10.50000	.00004534	.00003253	.00000944	.00000398	.00000757
12	.00000802	.00000470	.00000298	.00000105	.00000199

INCHES	6	7	8	9	10
2	.01840329	.05076056	.02165972	.07320800	.05246201
3	.01177990	.01423311	.00903481	.01939119	.02452900
4.50000	.00176304	.00360393	.00364289	.00617985	.00423103
6	.00056009	.00107935	.00050431	.00123399	.00065039
7.50000	.00019215	.00020086	.00007471	.00022193	.00015044
9	.00002540	.00004430	.00001849	.00004362	.00003585
10.50000	.00000664	.00000345	.00000401	.00000832	.00000889
12	.00000122	.00000222	.00000146	.00000196	.00000194

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	5.37398707	1.41420712	2.16551471
2	.30099999	.50085313	.84147123	.02545572	.78152243
3	.13524995	.21312143	.30883015	.00282841	.31662882
4.50000	.03356246	.05158497	.07119247		.07679931
6	.00851559	.01318510	.01611145		.01986946
7.50000	.00194914	.00306858	.00348156		.00454322
9	.00041889	.00062782	.00071355		.00089269
10.50000	.00008373	.00013016	.00014738		.00019423
12	.00001798	.00002754	.00003467		.00002754

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
59-S	1000	2D	2541	23.8255982

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
1.0000000	.7071100	.0000101	1.4142071	5.3739870

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

5.0800	2.5400	3.8100	3.8100	3.8100	3.8100
3.8100	3.8100				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0000054	.0000063	.0000010	.0560156	.0716869	.0120736
2	.0000029	.0000034	.0000005	.0661250	.0794928	.0123423
3	.0000018	.0000024	.0000005	.0265625	.0523908	.0097888
4	.0000007	.0000007	.0000002	.0140000	.0162599	.0038938
5	.0000010	.0000015	.0000005	.0282500	.0416084	.0131395
6	.0000007	.0000009	.0000003	.0167500	.0277006	.0102055
7	.0000012	.0000016	.0000008	.0231875	.0360950	.0170976
8	.0000009	.0000011	.0000007	.0160000	.0171828	.0099480
9	.0000016	.0000013	.0000010	.0370000	.0502311	.0370124
10	.0000018	.0000014	.0000013	.1175000	.1765502	.1579660

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0000030	.0000114	.0000042	.0235000	.0897632	.0317853
2	.0000018	.0000070	.0000022	.0230625	.0880920	.0314077
3	.0000021	.0000068	.0000021	.0393750	.1253342	.0458219
4	.0000013	.0000041	.0000009	.0428750	.1364750	.0554081
5	.0000015	.0000049	.0000013	.0286250	.0911160	.0337120
6	.0000017	.0000053	.0000013	.0313125	.0996706	.0430426
7	.0000013	.0000043	.0000015	.0260156	.0828101	.0394513
8	.0000016	.0000030	.0000011	.0480625	.0917924	.0467756
9	.0000010	.0000019	.0000009	.0423125	.0808107	.0597636
10	.0000010	.0000019	.0000009	.0275000	.0525210	.0442566
11	.0000007	.0000014	.0000006	.0232500	.0444041	.0440926
12	.0000010	.0000005	.0000005	.0455000	.0217246	.0461088

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0000180	.0000068		.0000180	.0000206	.0000068	.0000036

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.4013906	.5691986	.2834675	.1434399	.8565487	.0012403	.5973511

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
38.03402618	.2020527	.3573573

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
48-S	1.00000000	.34202000	.00001010	2D

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.13231265	.14954172	.07163489	.04192141	.06914235
2	.13338460	.11549781	.02976282	.02547207	.03028397
3	.06577847	.03774446	.01113678	.00711019	.01074956
4	.02347910	.01501659	.00389098	.00248003	.00347087
5	.00874873	.00516672	.00135713	.00063930	.00106929
6	.00303202	.00161877	.00039954	.00028086	.00031207
7	.00097745	.00050875	.00013498	.00007508	.00011085
8	.00036359	.00017482	.00004446	.00002330	.00003274
9	.00006803	.00004378	.00001981	.00000823	.00001136

INCHES	6	7	8	9	10
	.06462300	.10105729	.08680448	.15246422	.44373250
2	.01599906	.02522118	.00557571	.04626764	.03302360
3	.00563982	.00634518	.00411271	.01061562	.00771344
4	.00185758	.00261884	.00115157	.00377599	.00213644
5	.00055333	.00085405	.00039785	.00120646	.00070936
6	.00032967	.00026408	.00016833	.00041936	.00019918
7	.00008343	.00011176	.00006595	.00012653	.00006425
8	.00002472	.00003715	.00002356	.00005070	.00001936
9	.00000694	.00001391	.00000670	.00001633	.00000625

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
2	.05210809	.07170434	.01940903	.02067777	.02334389
3	.03789907	.02419185	.00846595	.00557787	.00924558
4	.01219490	.01023306	.00288345	.00183601	.00307782
5	.00542990	.00334827	.00103366	.00054782	.00081277
6	.00181745	.00105623	.00027601	.00022009	.00025530
7	.00062777	.00034057	.00010119	.00005444	.00008943
8	.00022548	.00011035	.00003351	.00001556	.00002726
9	.00006803	.00004378	.00001981	.00000823	.00001136

INCHES	6	7	8	9	10
2	.01264770	.02164053	.00214030	.04294838	.03244873
3	.00514573	.00567066	.00331832	.00928854	.00759636
4	.00163801	.00233325	.00093442	.00349216	.00205662
5	.00051458	.00074360	.00026425	.00108867	.00067236
6	.00029509	.00022411	.00013051	.00039393	.00019653
7	.00006894	.00009781	.00005429	.00011990	.00006355
8	.00002092	.00003552	.00001935	.00004527	.00001936
9	.00000694	.00001391	.00000670	.00001633	.00000625

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	11.11046136	2.92380562	4.15226327
2	.18500000	.29906877	.42811554		.46648847
3	.07412492	.11639993	.13775504		.16694623
4	.02674997	.04067970	.04642506		.05987801
5	.00935510	.01455586	.01581350		.02070224
6	.00316003	.00486525	.00535115		.00702388
7	.00104845	.00161789	.00177001		.00225905
8	.00036397	.00055259	.00060496		.00079442
9	.00012572	.00020133	.00022085		.00028133

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
48-S	1000	2D	2541	36.9437086

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
1.0000000	.3420200	.0000101	2.9238056	11.1104613

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

5.0800	2.5400	2.5400	2.5400	2.5400	2.5400
2.5400	2.5400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0000410	.0000239	.0000040	.0676914	.0452536	.0076217
2	.0000256	.0000158	.0000025	.0775000	.0511463	.0079411
3	.0000100	.0000069	.0000013	.0361875	.0245006	.0045777
4	.0000054	.0000030	.0000007	.0210625	.0143380	.0034336
5	.0000081	.0000042	.0000013	.0331875	.0236481	.0074678
6	.0000054	.0000026	.0000010	.0281250	.0221024	.0081430
7	.0000103	.0000051	.0000025	.0372500	.0345636	.0163722
8	.0000044	.0000025	.0000014	.0400000	.0296889	.0171883
9	.0000105	.0000058	.0000043	.0500703	.0521458	.0384232
10	.0000051	.0000021	.0000019	.1680625	.1517654	.1357901

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0000151	.0000578	.0000074	.0284375	.1086230	.0157545
2	.0000120	.0000457	.0000053	.0363828	.1389718	.0235257
3	.0000178	.0000568	.0000082	.0394414	.1255456	.0222538
4	.0000142	.0000451	.0000060	.0295000	.0939012	.0180974
5	.0000081	.0000256	.0000036	.0461875	.1470191	.0273433
6	.0000120	.0000381	.0000042	.0302500	.0962885	.0180329
7	.0000088	.0000280	.0000046	.0321250	.1022568	.0211320
8	.0000120	.0000229	.0000030	.0621875	.1187691	.0313571
9	.0000081	.0000154	.0000024	.0581875	.1111297	.0396467
10	.0000054	.0000103	.0000015	.0510625	.0975220	.0398704
11	.0000039	.0000075	.0000013	.0481875	.0920311	.0466384
12	.0000085	.0000041	.0000023	.0971875	.0464035	.0575967

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0001257	.0000209		.0001257	.0000720	.0000209	.0000191

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.5591367	.4491525	.2469587	.2170671	.7829018	.0022764	.4384612

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
38.03402618	.1519059	.3882183

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
128-S	2.00000000	1.00000000	.00001010	2C

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.06553570	.04448117	.04363383	.02292360	.02004013
3.50000	.13542328	.10838079	.05776925	.05844836	.03565359
6	.05648398	.04330313	.02340957	.01822983	.01875088
9	.01316194	.00730810	.00484224	.00382659	.00184220
12	.00176334	.00146144	.00075844	.00062282	.00026722
15	.00029888	.00013785	.00010392	.00008855	.00004048
18	.00003354	.00002752	.00001257	.00001064	.00000509
21	.00000457	.00000331	.00000141	.00000159	.00000102
24	.00000041	.00000026	.00000010	.00000012	.00000006

INCHES	6	7	8	9	10
	.00496806	.01663968	.01023107	.03654466	.07904322
3.50000	.02672591	.05620051	.04460891	.08930485	.10364004
6	.00549477	.02417280	.01606310	.02503772	.02897634
9	.00138199	.00284658	.00255697	.00458610	.00499340
12	.00025149	.00032989	.00034496	.00061165	.00077661
15	.00002978	.00004400	.00003934	.00009038	.00010793
18	.00000549	.00000698	.00000842	.00001329	.00001222
21	.00000054	.00000111	.00000111	.00000158	.00000165
24	.00000009	.00000015	.00000012	.00000018	.00000018

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
3.50000	.04146442	.04363826	.02793341	.03019382	.02174175
6	.02312829	.01828329	.01534372	.00975127	.01470077
9	.00533212	.00354539	.00348798	.00263329	.00133868
12	.00074668	.00075111	.00050594	.00043060	.00020208
15	.00016949	.00006075	.00006002	.00006876	.00003293
18	.00001507	.00001627	.00000714	.00000766	.00000354
21	.00000206	.00000172	.00000087	.00000114	.00000079
24	.00000041	.00000026	.00000010	.00000012	.00000006

INCHES	6	7	8	9	10
3.50000	.01836733	.04404943	.02834427	.07575517	.08889516
6	.00317929	.02001685	.01352507	.02041568	.02470152
9	.00109932	.00223749	.00188386	.00397580	.00475032
12	.00020742	.00025606	.00024064	.00055006	.00073510
15	.00001761	.00003629	.00003073	.00007680	.00010212
18	.00000435	.00000556	.00000658	.00001193	.00001190
21	.00000041	.00000096	.00000095	.00000141	.00000159
24	.00000009	.00000015	.00000012	.00000018	.00000018

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	4.29230768	1.00000000	1.33066240
3.50000	.37500000	.52238102	1.52140626	.10199999	.81815549
6	.12424990	.18304575	.45283460	.02000001	.27992214
9	.02162498	.03228426	.07360031	.00200000	.04934612
12	.00315620	.00463471	.00956147		.00718786
15	.00043553	.00065551	.00130816		.00098112
18	.00005761	.00009003	.00018594		.00013577
21	.00000796	.00001190	.00002508		.00001789
24	.00000108	.00000169	.00000332		.00000169

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
128-S	1000	2C	2541	15.6167184

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
2.0000000	1.0000000	.0000101	1.0000000	4.0999999

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

8.8900	6.3500	7.6200	7.6200	7.6200	7.6200
7.6200	7.6200				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0000002	.0000004	.0000001	.0365000	.0655357	.0102299
2	.0000002	.0000003	.0000001	.0292500	.0444812	.0064009
3	.0000001	.0000001		.0232500	.0436338	.0086203
4	.0000001	.0000001	.0000001	.0150000	.0229236	.0072684
5	.0000001			.0112500	.0200401	.0087981
6		.0000001	.0000001	.0022500	.0049681	.0026658
7	.0000001	.0000001	.0000001	.0097500	.0166397	.0113637
8	.0000001	.0000001	.0000001	.0060000	.0102311	.0084843
9	.0000001	.0000002	.0000002	.0210625	.0365447	.0347620
10	.0000002	.0000002	.0000002	.0455000	.0790432	.0790432

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR.	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0000001	.0000006	.0000003	.0230000	.0878533	.0390351
2	.0000002	.0000006	.0000005	.0113125	.0432105	.0212579
3	.0000001	.0000004	.0000003	.0272500	.0867393	.0461224
4	.0000001	.0000003	.0000003	.0142500	.0453590	.0271303
5	.0000001	.0000003	.0000002	.0207500	.0660491	.0555080
6	.0000001	.0000002	.0000002	.0135000	.0429717	.0326270
7	.0000001	.0000002	.0000002	.0140000	.0445633	.0341442
8	.0000001	.0000002	.0000001	.0212500	.0405844	.0413994
9	.0000001	.0000002	.0000001	.0172500	.0329450	.0182739
10	.0000001	.0000001	.0000001	.0150000	.0286478	.0307159
11		.0000001	.0000001	.0102500	.0195760	.0291340
12	.0000001			.0120000	.0057296	.0180680

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0000011	.0000008		.0000011	.0000016	.0000008	.0000002

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.1998125	.3440411	.1776367	.0593329	.9401621	.0010105	.7991758

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
41.04102618	.3233185	.5988907

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
60-S	2.00000000	.70711000	.00001010	**2C**

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.08741708	.06407252	.03297211	.07055622	.02834997
3	.18012388	.15244751	.05263742	.05760220	.04602941
5	.07352969	.04489634	.02533003	.01786224	.01461264
6	.03620070	.02438978	.01191972	.01085439	.00731137
8.97638	.00536834	.00386333	.00175625	.00137816	.00083401
10	.00251369	.00183998	.00094610	.00084841	.00033471
12	.00069450	.00042690	.00019012	.00022890	.00011595
15	.00008009	.00004743	.00001891	.00002391	.00000789
18	.00000443	.00000284	.00000138	.00000124	.00000148

INCHES	6	7	8	9	10
	.02164479	.05253123	.04616910	.03135392	.09432311
3	.02618457	.06493867	.04339738	.06092857	.10757460
5	.01388339	.01795718	.01607639	.01911259	.02941519
6	.00599385	.00996901	.00796746	.01113780	.01512547
8.97638	.00079875	.00149709	.00076678	.00110557	.00174761
10	.00034182	.00068468	.00036790	.00065523	.00083651
12	.00006801	.00014269	.00011900	.00019154	.00021066
15	.00000773	.00001451	.00001553	.00002444	.00002216
18	.00000084	.00000245	.00000214	.00000285	.00000243

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
3	.06750132	.07987738	.02382497	.03193410	.03200671
5	.03374769	.02229677	.01466131	.00979347	.01021941
6	.01604685	.01297889	.00671651	.00721081	.00554096
8.97638	.00244033	.00218368	.00098450	.00098243	.00057697
10	.00122788	.00096859	.00061559	.00058692	.00022901
12	.00033227	.00021877	.00011049	.00016046	.00008853
15	.00003989	.00002755	.00001146	.00001678	.00000593
18	.00000443	.00000284	.00000138	.00000124	.00000148

INCHES	6	7	8	9	10
3	.01800432	.05204514	.03324980	.05015504	.09754973
5	.01177135	.01427703	.01169912	.01557398	.02577673
6	.00399125	.00771434	.00617219	.00899272	.01375979
8.97638	.00065875	.00124347	.00065856	.00094345	.00167988
10	.00025960	.00060159	.00030152	.00055153	.00081630
12	.00004710	.00011443	.00009343	.00016469	.00020525
15	.00000455	.00001084	.00001269	.00002137	.00002184
18	.00000084	.00000245	.00000214	.00000285	.00000243

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	6.07021212	1.41420712	1.90926677
3	.36599999	.57524356	1.49474718	.08909506	.88095926
5	.11674996	.18395894	.41262004	.01414208	.28681776
6	.06074994	.09478114	.21027475	.00565682	.14652638
8.97638	.00832809	.01235201	.02377669		.01911588
10	.00394906	.00615852	.01184332		.00936904
12	.00099596	.00153543	.00304396		.00238828
15	.00011790	.00017290	.00034291		.00026261
18	.00001560	.00002208	.00004710		.00002208

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
60-S	1000	2C	2541	16.5639538

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
2.0000000	.7071100	.0000101	1.4142071	5.7982492

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

7.6200	5.0800	2.5400	7.5600	2.6000	5.0800
7.6200	7.6200				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0000029	.0000032	.0000005	.0443437	.0618135	.0096490
2	.0000018	.0000021	.0000003	.0383281	.0453063	.0065197
3	.0000007	.0000011	.0000002	.0252500	.0233149	.0046061
4	.0000009	.0000009	.0000003	.0335000	.0498910	.0158191
5	.0000009	.0000010	.0000005	.0140000	.0200466	.0088009
6	.0000007	.0000006	.0000003	.0080000	.0153052	.0082126
7	.0000018	.0000017	.0000011	.0282656	.0371454	.0253676
8	.0000015	.0000015	.0000013	.0205000	.0326466	.0270728
9	.0000023	.0000020	.0000019	.0195781	.0221707	.0210892
10	.0000021	.0000017	.0000017	.0530000	.0666968	.0666968

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0000029	.0000110	.0000056	.0275000	.1050420	.0398486
2	.0000023	.0000086	.0000036	.0223281	.0852870	.0367183
3	.0000018	.0000056	.0000027	.0255781	.0814175	.0262594
4	.0000013	.0000043	.0000024	.0240000	.0763942	.0305043
5	.0000016	.0000050	.0000026	.0250000	.0795773	.0324146
6	.0000013	.0000041	.0000021	.0212500	.0676407	.0303309
7	.0000009	.0000027	.0000010	.0233281	.0742555	.0406329
8	.0000013	.0000024	.0000012	.0210156	.0401368	.0301001
9	.0000010	.0000020	.0000013	.0292656	.0558931	.0325582
10	.0000007	.0000013	.0000007	.0222500	.0424943	.0384002
11	.0000002	.0000005	.0000003	.0200000	.0381971	.0415792
12	.0000004	.0000002	.0000003	.0232500	.0111010	.0232969

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0000156	.0000081		.0000156	.0000159	.0000081	.0000047

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.2847656	.3743370	.1938338	.0809099	.9190797	.0013072	.7139116

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
41.04102618	.6053674	.5682562

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
49-S	2.00000000	.34202000	.00001010	2C

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.07854551	.08635634	.07373523	.06719512	.06860604
1.50000	.25496098	.16176948	.13875857	.08948819	.05967333
3	.12874916	.06485111	.03976034	.02014253	.01273447
5	.02622677	.01761756	.01009077	.00544814	.00351042
6	.01321144	.00702251	.00381169	.00351032	.00109324
8	.00225984	.00152742	.00076300	.00056444	.00037927
9	.00102704	.00066752	.00031678	.00028901	.00015383
10	.00048806	.00029563	.00014215	.00013012	.00007159
12	.00005082	.00003737	.00002394	.00001787	.00001303

INCHES	6	7	8	9	10
	.05084699	.08642455	.10147538	.15937181	.26876141
1.50000	.04426737	.06571590	.05319368	.13065652	.19604760
3	.01415196	.03040581	.02429691	.02985863	.03390570
5	.00263529	.00547846	.00292999	.00475702	.00631935
6	.00201573	.00226213	.00245893	.00219606	.00267140
8	.00024851	.00047229	.00030020	.00054589	.00047132
9	.00013310	.00022940	.00011355	.00026672	.00014776
10	.00005756	.00010871	.00006058	.00012252	.00006843
12	.00001104	.00001720	.00001337	.00002604	.00001807

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1.50000	.06749422	.08430687	.07901269	.04776333	.03924633
3	.06800757	.03737927	.02298066	.01260906	.00705589
5	.01358279	.01010851	.00695511	.00440634	.00298377
6	.00661089	.00381077	.00254595	.00276284	.00064566
8	.00115861	.00080780	.00057227	.00043171	.00027283
9	.00052587	.00038229	.00022167	.00021986	.00010818
10	.00024304	.00016199	.00009048	.00010576	.00005211
12	.00005082	.00003737	.00002394	.00001787	.00001303

INCHES	6	7	8	9	10
1.50000	.02364289	.05324082	.03737085	.11177387	.15632940
3	.01057452	.02550117	.01832668	.02581928	.03145987
5	.00219478	.00519333	.00252488	.00428723	.00623978
6	.00160403	.00180480	.00216207	.00184221	.00264331
8	.00018734	.00039665	.00025332	.00049470	.00047132
9	.00010401	.00020507	.00009406	.00024064	.00014011
10	.00004565	.00009566	.00005024	.00011207	.00006843
12	.00001104	.00001720	.00001337	.00002604	.00001807

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	12.54987337	2.92380562	3.87822021
1.50000	.43999999	.86683820	2.42118842	.16665691	1.36118854
3	.16000000	.26848538	.53787370	.00877143	.40762804
5	.03687496	.05847654	.10205910		.08501376
6	.01687498	.02643254	.04733438		.04025345
8	.00335143	.00504656	.00901659		.00753218
9	.00146869	.00224176	.00386322		.00334471
10	.00067154	.00102544	.00181466		.00154535
12	.00015013	.00022874	.00041458		.00022874

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
49-S	1000	2C	2541	22.8301215

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
2.0000000	.3420200	.0001101	2.9238056	11.9876029

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

3.8100	3.8100	5.0800	2.5400	5.0800	2.5400
2.5400	5.0800				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0000317	.0000184	.0000029	.0495625	.0268641	.0041934
2	.0000225	.0000134	.0000019	.0441250	.0295356	.0042502
3	.0000134	.0000088	.0000017	.0382500	.0252189	.0049823
4	.0000115	.0000064	.0000021	.0361250	.0229821	.0072870
5	.0000083	.0000046	.0000021	.0260625	.0234646	.0103016
6	.0000073	.0000040	.0000021	.0230000	.0173907	.0093316
7	.0000112	.0000063	.0000043	.0361250	.0295589	.0201866
8	.0000090	.0000050	.0000042	.0361875	.0347066	.0287811
9	.0000198	.0000090	.0000086	.0460000	.0545083	.0518494
10	.0000154	.0000062	.0000062	.0940000	.0919218	.0919218

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0000227	.0000867	.0000195	.0271875	.1038484	.0129270
2	.0000151	.0000578	.0000120	.0230000	.0878533	.0131393
3	.0000161	.0000513	.0000094	.0282500	.0899223	.0163466
4	.0000171	.0000544	.0000095	.0221875	.0706249	.0134759
5	.0000146	.0000466	.0000097	.0240625	.0765932	.0198568
6	.0000122	.0000389	.0000084	.0231250	.0736090	.0134741
7	.0000083	.0000264	.0000056	.0320000	.1018590	.0269737
8	.0000146	.0000280	.0000063	.0372500	.0711421	.0210145
9	.0000066	.0000126	.0000032	.0451250	.0861822	.0326108
10	.0000100	.0000191	.0000058	.0450625	.0860628	.0386125
11	.0000051	.0000098	.0000025	.0430625	.0822431	.0542488
12	.0000076	.0000036	.0000024	.0791250	.0377793	.0578906

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0001501	.0000360		.0001501	.0000821	.0000360	.0000369

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.4294375	.3561517	.2330849	.1484925	.8514636	.0011387	.5692737

	MEAN ENERGY SCAT.TR.NT.		MEAN ENERGY REFL. NT.
41.04102618	.4918620		.6915673

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
129-S	3.00000000	1.00000000	.00001010	28

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.03842235	.06801052	.03148616	.02796654	.02553252
3	.19337682	.13825791	.05935283	.06573800	.06668583
6	.07762706	.07393214	.03309467	.02139665	.02103313
9	.01924815	.02144617	.01047794	.00683980	.00901137
12	.00817520	.00497701	.00270010	.00280457	.00176495
15	.00252492	.00154054	.00086524	.00071659	.00061977
18	.00091095	.00038272	.00023423	.00012802	.00021718
21	.00010850	.00006274	.00006633	.00003282	.00003354
24	.00000960	.00001035	.00000564	.00000922	.00000544

INCHES	6	7	8	9	10
	.02990853	.01845752	.00926553	.04811727	.01379252
3	.10709633	.08490107	.03139116	.08859846	.08631413
6	.05166752	.03681463	.03949160	.03067453	.03921943
9	.01240004	.00787645	.01006739	.00956950	.01155545
12	.00318359	.00321735	.00385126	.00322275	.00382670
15	.00108675	.00057823	.00086621	.00111342	.00085285
18	.00022864	.00015580	.00018872	.00021696	.00019994
21	.00006952	.00005211	.00003941	.00005513	.00003641
24	.00001190	.00000681	.00000922	.00001279	.00000891

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
3	.06272292	.05605504	.02306670	.04492427	.04177526
6	.02950409	.03287337	.01522060	.01126137	.01001307
9	.00715416	.01153656	.00614440	.00386868	.00651536
12	.00350977	.00228776	.00142708	.00158931	.00085308
15	.00104370	.00074311	.00049375	.00041869	.00038565
18	.00025311	.00020110	.00013196	.00007374	.00017160
21	.00003897	.00002340	.00003536	.00002276	.00002381
24	.00000960	.00001035	.00000564	.00000922	.00000544

INCHES	6	7	8	9	10
3	.08345409	.06529270	.06327537	.06364780	.08083050
6	.03606436	.02965243	.03572259	.02593405	.03544576
9	.00938048	.00645427	.00805628	.00865250	.01155545
12	.00213812	.00238482	.00353961	.00282262	.00380779
15	.00088336	.00046467	.00076230	.00101125	.00085285
18	.00017020	.00012272	.00016666	.00020718	.00019994
21	.00005313	.00004273	.00003484	.00005257	.00003641
24	.00001190	.00000681	.00000922	.00001279	.00000891

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	4.78461538	1.00000000	1.30404219
3	.58800000	.80764474	2.73962018	.22200000	1.19271250
6	.22050000	.30969169	.99972495	.04800000	.47191135
9	.06699993	.08931814	.26461094	.01000000	.12849554
12	.01949993	.02635897	.07899425	.00200000	.03972356
15	.00498435	.00705934	.01893362		.01076457
18	.00114449	.00169822	.00435624		.00246319
21	.00025778	.00036401	.00102060		.00055651
24	.00005956	.00008988	.00023910		.00008988

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
129-S	1000	28	$\theta\phi$	12.0252999
INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
3.0000000	1.0000000	.0000101	1.0000000	4.5999999

SLAB CONFIGURATION 'WATER'

REGION THICKNESSES (CENTIMETERS)

7.6200	7.6200	7.6200	7.6200	7.6200	7.6200
7.6200	7.6200				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0000056	.0000096	.0000013	.0272500	.0384223	.0053457
2	.0000056	.0000093	.0000012	.0300000	.0680135	.0087235
3	.0000034	.0000056	.0000010	.0162500	.0314862	.0055443
4	.0000051	.0000088	.0000025	.0155000	.0279665	.0079036
5	.0000032	.0000058	.0000025	.0117500	.0255325	.0111011
6	.0000076	.0000121	.0000081	.0170000	.0299085	.0201557
7	.0000049	.0000068	.0000057	.0105000	.0184575	.0156487
8	.0000068	.0000098	.0000087	.0065000	.0092655	.0082584
9	.0000100	.0000133	.0000122	.0295000	.0481173	.0439332
10	.0000073	.0000104	.0000100	.0030000	.0137925	.0131929

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0000178	.0000341	.0000265	.0312500	.0596830	.0356096
2	.0000078	.0000149	.0000104	.0230000	.0439266	.0258526
3	.0000076	.0000145	.0000118	.0275000	.0525210	.0198199
4	.0000083	.0000158	.0000117	.0210000	.0401070	.0247409
5	.0000037	.0000070	.0000077	.0130000	.0248281	.0162756
6	.0000044	.0000084	.0000075	.0140000	.0267380	.0273610
7	.0000029	.0000056	.0000043	.0097500	.0186211	.0161535
8	.0000049	.0000093	.0000069	.0115000	.0219633	.0163001
9	.0000002	.0000005	.0000027	.0070000	.0133690	.0243126
10	.0000002	.0000005	.0000025	.0040000	.0076394	.0168961
11	.0000007	.0000014	.0000053	.0022500	.0042972	.0134824
12	.0000010	.0000019	.0000044	.0030000	.0057296	.0302066

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0000596	.0000533		.0000596	.0000915	.0000533	.0000229

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.1672500	.3109625	.1398072	.0409028	.9590712	.0000952	.8325952

		MEAN ENERGY SCAT.TR.NT.		MEAN ENERGY REFL. NT.		
46.04405236		1.1542315		.7336824		

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
52-S	3.00000000	.70711000	.00001010	2B

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.06629154	.05993057	.05481592	.03185469	.04788657
1	.18776371	.15940989	.05385359	.06708427	.10504024
3	.15300038	.11347151	.09236847	.05551315	.09883047
5	.08360777	.06597780	.03447432	.02888241	.01810353
6	.06195723	.03734999	.02066305	.01754028	.02099839
9.03937	.01454851	.01135101	.00466949	.00459207	.00488663
12	.00300662	.00197635	.00102263	.00097377	.00084809
15	.00058657	.00040456	.00023020	.00017929	.00019353
18	.00005997	.00004198	.00002748	.00002676	.00002604

INCHES	6	7	8	9	10
	.06159140	.06153385	.02463099	.09299472	.03772258
1	.16259475	.08996272	.12797976	.13265995	.17791882
3	.08658649	.06493660	.07993041	.09081222	.09957487
5	.03973400	.05061003	.02919538	.02709017	.04634905
6	.03402463	.02548735	.01802064	.01815969	.02871239
9.03937	.00700506	.00511361	.00527643	.00340200	.00529900
12	.00127976	.00106222	.00089271	.00074699	.00107029
15	.00028663	.00021341	.00019510	.00018304	.00018380
18	.00004068	.00002755	.00004121	.00003723	.00003557

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1	.01434028	.02865202	.02031615	.02469074	.05024179
3	.04478004	.05555189	.05135020	.03650691	.06308057
5	.02688692	.03055956	.01867601	.01895454	.00869286
6	.02426365	.01874596	.01013975	.01145246	.01349251
9.03937	.00612122	.00587150	.00215063	.00290618	.00329592
12	.00140725	.00095919	.00058938	.00062792	.00053033
15	.00024343	.00020931	.00012394	.00011221	.00010929
18	.00005997	.00004198	.00002748	.00002676	.00002604

INCHES	6	7	8	9	10
1	.07907078	.05228814	.08696283	.08845165	.16705000
3	.06524287	.03620395	.07045859	.07892127	.09957487
5	.02457944	.04182899	.02603705	.02177724	.04558118
6	.02299176	.02022153	.01642496	.01556269	.02825459
9.03937	.00546200	.00407448	.00484484	.00313279	.00527619
12	.00097515	.00090462	.00081632	.00069487	.00106157
15	.00022372	.00017573	.00018313	.00016764	.00018380
18	.00004068	.00002755	.00004121	.00003723	.00003557

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.41420712	6.76643716	1.41420712	1.92301078
1	.83799999	1.30785428	5.48625445	.69578990	1.96005762
3	.46099999	.76996182	2.52798403	.16829064	1.10331523
5	.20799999	.30317160	.93701500	.03959779	.46362225
6	.13143737	.20134877	.58943351	.01979890	.30271254
9.03937	.02837497	.04454997	.11706627	.00141422	.06755802
12	.00567960	.00856661	.02182599		.01287942
15	.00116830	.00173220	.00447208		.00265614
18	.00023825	.00036448	.00090933		.00036448

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
52-S	1000	28	2541	12.7546978

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
3.0000000	.7071100	.0000101	1.4142071	6.5053527

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

2.5400	5.0800	5.0800	2.5400	7.7200	7.5200
7.6200	7.6200				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0000298	.0000410	.0000057	.0390625	.0468754	.0065218
2	.0000215	.0000293	.0000038	.0351328	.0423775	.0054354
3	.0000156	.0000208	.0000037	.0270000	.0387609	.0068253
4	.0000166	.0000183	.0000052	.0160625	.0225248	.0063657
5	.0000161	.0000190	.0000083	.0190625	.0338611	.0147222
6	.0000278	.0000288	.0000194	.0230000	.0435519	.0293502
7	.0000205	.0000193	.0000164	.0181875	.0435112	.0368899
8	.0000313	.0000301	.0000269	.0090000	.0174168	.0155237
9	.0000288	.0000271	.0000248	.0371250	.0657575	.0600395
10	.0000303	.0000252	.0000241	.0120000	.0266740	.0255143

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0000293	.0001119	.0000625	.0170703	.0652036	.0214077
2	.0000322	.0001231	.0000630	.0181875	.0694710	.0155041
3	.0000317	.0001010	.0000479	.0190625	.0606777	.0219792
4	.0000254	.0000808	.0000416	.0181250	.0576935	.0215580
5	.0000200	.0000638	.0000347	.0160000	.0509294	.0172619
6	.0000171	.0000544	.0000306	.0160625	.0511284	.0213765
7	.0000151	.0000482	.0000296	.0160000	.0509294	.0282142
8	.0000195	.0000373	.0000208	.0190625	.0364066	.0169351
9	.0000171	.0000327	.0000206	.0200000	.0381971	.0191971
10	.0000103	.0000196	.0000133	.0240625	.0459559	.0358225
11	.0000122	.0000233	.0000186	.0100000	.0190986	.0154057
12	.0000083	.0000040	.0000043	.0420000	.0200535	.0559122

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0002383	.0001381		.0002383	.0002591	.0001381	.0000866

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.2356328	.3813111	.2071879	.0612981	.9386106	.0022427	.7618862

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
46.04402618	1.0901075	.7804277

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
50-S	3.00000000	.34202000	.00001010	2B

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.08481220	.06114786	.05984884	.05376340	.09342084
1.50000	.20553995	.13323021	.10594503	.10206392	.09518422
3	.12447392	.10247915	.06185140	.06421085	.04406992
5	.04425050	.03063464	.01457856	.01730151	.01699544
6	.02909701	.01441061	.01194680	.00563647	.00606051
8	.00712139	.00454372	.00283799	.00187170	.00183147
9	.00319781	.00207979	.00149803	.00092713	.00078187
10	.00194491	.00120468	.00076192	.00069121	.00063010
12	.00038789	.00019241	.00016939	.00020181	.00009179

INCHES	6	7	8	9	10
	.14650890	.09083489	.13838235	.15466348	.09793570
1.50000	.14820280	.12844188	.09976241	.14627903	.13370355
3	.05618984	.05294869	.04179584	.03084939	.06191852
5	.02086700	.02156724	.01711282	.00856561	.01219678
6	.00745293	.00620001	.00903654	.00515833	.00551440
8	.00276522	.00306595	.00320074	.00163332	.00147597
9	.00182245	.00153210	.00171259	.00075839	.00071838
10	.00102349	.00092203	.00095268	.00045286	.00042127
12	.00021639	.00019997	.00025113	.00015350	.00012732

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
1.50000	.04111065	.06530626	.04383369	.06458565	.06738402
3	.04977217	.05064390	.03416559	.04002535	.02873027
5	.01281302	.01516102	.00755601	.01128135	.00956821
6	.01309662	.00745081	.00838832	.00330246	.00439571
8	.00292084	.00201121	.00125851	.00129722	.00145666
9	.00148196	.00089927	.00093375	.00054666	.00047544
10	.00083408	.00058525	.00045530	.00041346	.00047554
12	.00038789	.00019241	.00016939	.00020181	.00009179

INCHES	6	7	8	9	10
1.50000	.07313995	.08838659	.08100827	.12749649	.11929166
3	.03552010	.04548523	.03614253	.02651611	.05452377
5	.01427979	.01684031	.01560991	.00794300	.01213969
6	.00537319	.00416056	.00858367	.00476425	.00545056
8	.00231074	.00269500	.00279654	.00126173	.00146923
9	.00143008	.00135934	.00155771	.00073515	.00071163
10	.00078751	.00081764	.00089057	.00042159	.00042127
12	.00021639	.00019997	.00025113	.00015350	.00012732

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	13.98928537	2.92380562	3.83946199
1.50000	.52699999	1.09608565	3.90694687	.32454245	1.62289543
3	.25299999	.43661067	1.17734483	.03508567	.67587320
5	.07699997	.12319232	.32242948		.20407010
6	.04224998	.06496615	.14890734		.10051362
8	.01240620	.01947769	.05027413		.03034748
9	.00665622	.01013099	.02673132		.01502853
10	.00407406	.00610221	.01594089		.00900515
12	.00141791	.00199161	.00471833		.00199161

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
50-S	1000	2 B	2541	17.5798172

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
3.0000000	.3420200	.0000101	2.9238056	13.4495058

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

3.8100	3.8100	5.0800	2.5400	5.0800	2.5400
2.5400	5.0800				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0002031	.0001434	.0000199	.0405312	.0290075	.0040358
2	.0001484	.0000661	.0000085	.0352500	.0209138	.0026824
3	.0001172	.0000625	.0000110	.0322500	.0204695	.0036044
4	.0001172	.0000696	.0000197	.0297500	.0183882	.0051967
5	.0000742	.0000315	.0000137	.0390000	.0319518	.0138921
6	.0001758	.0000745	.0000502	.0657539	.0501090	.0337691
7	.0001563	.0000680	.0000576	.0345000	.0310674	.0263397
8	.0001953	.0000859	.0000766	.0382500	.0473295	.0421850
9	.0001250	.0000518	.0000472	.0540000	.0528980	.0482982
10	.0001055	.0000436	.0000417	.0290000	.0334960	.0320396

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0001758	.0006715	.0001287	.0242500	.0926280	.0122720
2	.0002188	.0008356	.0001854	.0220000	.0840336	.0167578
3	.0002539	.0008082	.0001728	.0260000	.0827604	.0121473
4	.0001484	.0004725	.0001057	.0272500	.0867393	.0177390
5	.0001289	.0004103	.0000962	.0222539	.0708362	.0127801
6	.0001016	.0003233	.0000827	.0250000	.0795773	.0229664
7	.0001055	.0003357	.0001058	.0262500	.0835562	.0204292
8	.0001445	.0002760	.0000815	.0420000	.0802139	.0258237
9	.0000547	.0001044	.0000278	.0405000	.0773491	.0296545
10	.0000234	.0000447	.0000146	.0390000	.0744844	.0289416
11	.0000117	.0000224	.0000096	.0210312	.0401666	.0233381
12	.0000508	.0000242	.0000082	.0827500	.0395101	.0577654

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0014180	.0003461		.0014180	.0006968	.0003461	.0004282

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.3982852	.3356306	.2120430	.1279970	.8715695	.0010156	.5992812

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
46.04402618	.9059232	.9641108

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
130-S	5.00000000	1.00000000	.00001010	2A

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT [illegible] BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.04249827	.02260547	.01814264	.01194818	.01628065
3	.12832209	.07886313	.04158969	.05795390	.03641617
6	.08565782	.06785044	.03191543	.03237759	.03739227
9	.04006653	.03756915	.01745195	.01309111	.01882077
12	.02134129	.01461440	.00749360	.01092554	.00747446
18	.00328404	.00233192	.00112882	.00119594	.00104673
24	.00032171	.00019912	.00013503	.00010073	.00016697
30	.00003573	.00002748	.00002030	.00001664	.00001652
35.88189	.00000164	.00000163	.00000061	.00000077	.00000114

INCHES	6	7	8	9	10
	.01367369	.02982004	.02886054	.03971980	.01678989
3	.08276145	.11734773	.10639748	.09106911	.15671204
6	.07736811	.10135858	.06381575	.05981829	.07748275
9	.02353046	.04833624	.03775556	.02260878	.04196016
12	.01225514	.01943693	.01768276	.01173865	.01728922
18	.00206515	.00272510	.00248970	.00162555	.00286086
24	.00018634	.00027396	.00026268	.00020518	.00031717
30	.00002467	.00003769	.00002322	.00002074	.00003196
35.88189	.00000225	.00000290	.00000356	.00000134	.00000309

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
3	.03984250	.02048988	.01562053	.03178997	.01871581
6	.02345499	.02037120	.01447335	.01738539	.02065784
9	.01309030	.01443746	.00814292	.00638770	.01143642
12	.00726946	.00506754	.00315618	.00543439	.00467326
18	.00124071	.00100178	.00047676	.00066374	.00050828
24	.00009165	.00006131	.00006833	.00004901	.00011529
30	.00001339	.00000933	.00001067	.00000972	.00001099
35.88189	.00000164	.00000163	.00000061	.00000077	.00000114

INCHES	6	7	8	9	10
3	.04610764	.08685294	.09306761	.06311612	.14830934
6	.04627022	.07628604	.05624817	.04632824	.07596328
9	.01649900	.03297224	.03091680	.01991253	.04139890
12	.00729227	.01522979	.01587354	.01035495	.01694867
18	.00136321	.00210318	.00211679	.00136095	.00279462
24	.00011813	.00021050	.00023068	.00018155	.00031004
30	.00001790	.00003004	.00002036	.00001736	.00003131
35.88189	.00000225	.00000290	.00000356	.00000134	.00000309

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	5.76923075	1.00000000	1.23043064
3	.68700000	.88791231	4.04956689	.32399999	1.22143281
6	.35850000	.50643872	2.06773505	.10599999	.73903707
9	.16199996	.22769434	.89730789	.03200001	.33319073
12	.06837492	.10030009	.37514324	.00800001	.14825198
18	.00924997	.01363001	.04838313		.02075381
24	.00098629	.00143652	.00530766		.00216889
30	.00011596	.00016812	.00058843		.00025494
35.88189	.00001303	.00001895	.00006499		.00001895

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
130-S	1000	2A	2541	13.4716847

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
5.0000000	1.0000000	.0000101	1.0000000	5.7999999

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

7.6200	7.6200	7.6200	7.6200	15.2400	15.2400
15.2400	14.9400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0000009	.0000018	.0000002	.0241250	.0424983	.0046894
2	.0000011	.0000017	.0000002	.0126250	.0226055	.0022995
3	.0000004	.0000006	.0000001	.0135000	.0181426	.0025337
4	.0000005	.0000007	.0000002	.0075000	.0119482	.0026780
5	.0000006	.0000014	.0000005	.0087520	.0162806	.0056140
6	.0000012	.0000027	.0000014	.0095000	.0136737	.0073084
7	.0000021	.0000030	.0000021	.0173750	.0298200	.0205655
8	.0000025	.0000036	.0000026	.0112500	.0288605	.0213966
9	.0000011	.0000013	.0000011	.0290000	.0397198	.0321867
10	.0000027	.0000031	.0000030	.0115000	.0167899	.0159215

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0000022	.0000084	.0000063	.0180020	.0687623	.0364349
2	.0000015	.0000056	.0000044	.0090000	.0343774	.0161377
3	.0000016	.0000050	.0000039	.0152500	.0485422	.0280300
4	.0000012	.0000039	.0000031	.0106250	.0338204	.0226531
5	.0000011	.0000036	.0000027	.0165000	.0525210	.0318022
6	.0000012	.0000039	.0000029	.0147500	.0469506	.0314531
7	.0000008	.0000024	.0000016	.0180000	.0572956	.0406252
8	.0000012	.0000023	.0000021	.0085000	.0162338	.0124888
9	.0000010	.0000019	.0000012	.0130000	.0248281	.0193645
10	.0000006	.0000011	.0000011	.0062500	.0119366	.0106905
11	.0000002	.0000005	.0000006	.0077500	.0148014	.0152925
12	.0000005	.0000003	.0000006	.0075000	.0035810	.0107855

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0000131	.0000113		.0000131	.0000199	.0000113	.0000053

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.1451270	.2403392	.1151935	.0445241	.9554668	.0397039	.8151560

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
58.05502618	2.0326929	1.5339703

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
53 - S	5.00000000	.34202000	.00001010	2 A

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.07226639	.05028352	.04181004	.04453088	.04281461
3	.10338230	.10675641	.05235051	.03998575	.06812894
4	.10406006	.07082144	.03008785	.03135766	.03220371
6	.03567583	.02211154	.01258723	.01329967	.01109362
8	.01370398	.00843868	.00404231	.00360486	.00827401
9.03937	.00903371	.00568917	.00281202	.00238752	.00218265
12	.00215281	.00152020	.00087863	.00075673	.00069363
15	.00067563	.00048606	.00025786	.00022319	.00018906
18	.00005752	.00005693	.00004801	.00003509	.00005611

INCHES	6	7	8	9	10
	.09459460	.14550635	.11769653	.17301925	.09667972
3	.06206638	.08931230	.12628240	.08560122	.12588668
4	.04152991	.06789964	.04839764	.03352799	.06643306
6	.01467185	.01830117	.01942235	.01293199	.01995419
8	.00515385	.00697539	.00927572	.00529220	.00900836
9.03937	.00341311	.00585124	.00668557	.00336269	.00454106
12	.00116303	.00155161	.00139774	.00103820	.00096736
15	.00032825	.00045128	.00045524	.00027470	.00024360
18	.00009037	.00008438	.00010736	.00005674	.00007706

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
3	.03903554	.03275512	.02817182	.01768604	.04063103
4	.03975340	.03775362	.01284582	.01880291	.01957610
6	.01376172	.01138319	.00547065	.00890221	.00851392
8	.00671340	.00407271	.00195519	.00206774	.00580609
9.03937	.00329697	.00250884	.00167456	.00165777	.00161127
12	.00084433	.00066310	.00045858	.00049592	.00042274
15	.00027424	.00022892	.00012829	.00014137	.00011764
18	.00005752	.00005693	.00004801	.00003509	.00005611

INCHES	6	7	8	9	10
3	.04377836	.07071775	.08684693	.06901342	.11133060
4	.02525436	.04796731	.03969287	.02849689	.06238466
6	.01012609	.01463625	.01519170	.01102930	.01995419
8	.00328839	.00499384	.00818723	.00449282	.00884084
9.03937	.00210506	.00443693	.00585507	.00289745	.00439396
12	.00086071	.00125882	.00123632	.00092202	.00095698
15	.00023268	.00038497	.00041419	.00025234	.00024360
18	.00009037	.00008438	.00010736	.00005674	.00007706

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	16.86810937	2.92380562	3.74170860
3	.33999999	.64814742	2.57632421	.10818083	.96793369
4	.21599999	.36761361	1.26371684	.03508567	.56140462
6	.07874991	.12189303	.38967570	.00292383	.18297325
8	.03174996	.05041825	.16121574		.07376935
9.03937	.01993742	.03043790	.10007552		.04595876
12	.00571873	.00811954	.02607794		.01211994
15	.00164431	.00241826	.00759442		.00358488
18	.00047259	.00066957	.00208888		.00066957

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
53-S	1000	2A	2541	19.7591167

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
5.0000000	.3420200	.0000101	2.9238056	16.9580726

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

7.6200	2.5400	5.0800	5.0800	2.6400	7.5200
7.6200	7.6200				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0000381	.0000200	.0000022	.0410000	.0247166	.0027273
2	.0000371	.0000211	.0000021	.0251250	.0171980	.0017494
3	.0000283	.0000175	.0000025	.0251250	.0142999	.0019971
4	.0000254	.0000121	.0000027	.0230000	.0152305	.0034137
5	.0000342	.0000214	.0000074	.0230000	.0146434	.0050495
6	.0000576	.0000338	.0000181	.0403750	.0323532	.0172922
7	.0000596	.0000302	.0000209	.0541406	.0497661	.0343214
8	.0000850	.0000367	.0000272	.0403750	.0402546	.0298439
9	.0000439	.0000195	.0000158	.0461406	.0591760	.0479530
10	.0000635	.0000261	.0000248	.0341250	.0330664	.0313561

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0000801	.0003058	.0000721	.0191250	.0730519	.0104637
2	.0000615	.0002350	.0000510	.0171406	.0654722	.0070843
3	.0000723	.0002300	.0000568	.0252500	.0803730	.0118920
4	.0000371	.0001181	.0000230	.0232500	.0740069	.0167276
5	.0000430	.0001368	.0000335	.0181250	.0576935	.0087565
6	.0000361	.0001150	.0000296	.0183906	.0585390	.0092018
7	.0000273	.0000870	.0000164	.0211250	.0672428	.0142181
8	.0000342	.0000653	.0000163	.0382500	.0730519	.0225531
9	.0000361	.0000690	.0000190	.0393750	.0752005	.0262905
10	.0000166	.0000317	.0000085	.0340000	.0649351	.0276583
11	.0000127	.0000242	.0000095	.0252500	.0482238	.0255016
12	.0000156	.0000075	.0000064	.0731250	.0349145	.0475784

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0004727	.0001237		.0004727	.0002386	.0001237	.0001612

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.3524062	.3007046	.1757037	.1068789	.8929552	.0422051	.6049160

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
58.05502618	1.7048622	1.5164161

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
104-S	14.00000000	1.00000000	.00001010	2

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.02446344	.01204129	.00455269	.00495698	.00949909
6	.05442441	.06216451	.05001117	.03300226	.03133701
12	.03017779	.02784811	.01115638	.01570866	.01055302
15	.01679123	.01204229	.01119525	.00911455	.01012631
18	.01041887	.00905907	.00636272	.00413463	.00530143
21	.00614306	.00417091	.00185530	.00204956	.00275235
24	.00450499	.00297609	.00206666	.00106788	.00145231
30	.00150394	.00101661	.00049071	.00045933	.00049304
35.88189	.00009990	.00006694	.00006808	.00006439	.00006055

INCHES	6	7	8	9	10
	.02205545	.02100580	.02101970	.01261820	.03861303
6	.06706672	.07287303	.05879592	.07585605	.30285507
12	.01802484	.02187261	.01889861	.02760753	.13708615
15	.01654552	.01455323	.02115429	.02563278	.08362235
18	.00863567	.00967014	.01105528	.00922408	.05062347
21	.00458837	.00642674	.00432176	.00588787	.03203185
24	.00262340	.00378167	.00312973	.00436522	.01747409
30	.00084157	.00108151	.00117234	.00114241	.00518512
35.88189	.00011239	.00018081	.00022038	.00026739	.00137730

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
6	.01211041	.02047679	.01796171	.01803771	.00916670
12	.00945766	.01142983	.00338186	.00841596	.00341707
15	.00358306	.00274152	.00499781	.00529311	.00475203
18	.00318055	.00223132	.00309837	.00140034	.00215107
21	.00184539	.00136577	.00076663	.00112179	.00134921
24	.00117450	.00117648	.00130214	.00044878	.00068674
30	.00050706	.00040951	.00019287	.00015706	.00018791
35.88189	.00009990	.00006694	.00006808	.00006439	.00006055

INCHES	6	7	8	9	10
6	.02972896	.04001757	.04042878	.05184783	.26860366
12	.00744099	.01134367	.01089657	.01994674	.12773279
15	.00887316	.00612633	.01588386	.02129240	.07963762
18	.00495787	.00665212	.00882913	.00739833	.04745999
21	.00246157	.00444073	.00297088	.00456438	.03020992
24	.00110401	.00232983	.00187692	.00340973	.01661742
30	.00047660	.00069506	.00094323	.00091706	.00496535
35.88189	.00011239	.00018081	.00022038	.00026739	.00137730

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	1.00000000	7.00000000	1.00000000	1.15629577
6	.55199999	.72938012	4.18375843	.22099999	1.02938615
12	.20150000	.26146313	1.46896283	.04800000	.36693371
15	.12274996	.17618091	.96765340	.02299999	.24377779
18	.07074993	.09735909	.52767791	.01000000	.13448536
21	.04137496	.05609629	.31126354	.00500000	.07522777
24	.02324991	.03212655	.17134406	.00200000	.04544204
30	.00661708	.00945170	.04860008		.01338659
35.88189	.00182219	.00251814	.01324405		.00251814

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
104-S	1000	2	2541	9.024556

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
14.000000	1.000000	.000010	1.000000	7.000000

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

15.2400	15.2400	7.6200	7.6200	7.6200	7.6200
15.2400	14.9400				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.000068	.000101	.000009	.009000	.024463	.002237
2	.000045	.000066	.000006	.008000	.012041	.001015
3	.000051	.000068	.000008	.003000	.004553	.000527
4	.000049	.000065	.000012	.003500	.004957	.000921
5	.000045	.000061	.000017	.007000	.009499	.002714
6	.000066	.000130	.000058	.011062	.022055	.009767
7	.000121	.000194	.000111	.011000	.021006	.012003
8	.000121	.000234	.000144	.011000	.021020	.012912
9	.000180	.000275	.000200	.006000	.012618	.009193
10	.001076	.001396	.001356	.021250	.038613	.037519

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.000334	.001276	.001092	.009500	.036287	.020205
2	.000266	.001015	.000895	.014500	.055386	.041348
3	.000260	.000827	.000713	.005500	.017507	.010999
4	.000195	.000622	.000533	.009500	.030239	.017280
5	.000180	.000572	.000573	.001250	.003979	.003444
6	.000109	.000348	.000306	.004062	.012931	.007496
7	.000103	.000329	.000356	.007500	.023873	.009270
8	.000111	.000213	.000248	.013000	.024828	.017200
9	.000100	.000190	.000220	.007000	.013369	.013379
10	.000084	.000160	.000211	.003000	.005730	.006903
11	.000029	.000056	.000114	.007500	.014324	.021083
12	.000051	.000024	.000098	.008500	.004058	.012790

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.001822	.001921		.001822	.002590	.001921	.000863

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.090812	.170826	.088799	.019057	.980078	.196381	.710984

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
7006.802618	6.632459	2.937900

RUN NUMBER	INC.ENERGY	COS. THETA	CUTOFF EGY.	ENERGY SET
54-S	14.00000000	.34202000	.00001010	2

SLAB CONFIGURATION **WATER**

SCATTERED FLUX PER NEUTRON AT REGION BDS. IN ENERGY GRPS.

INCHES	1	2	3	4	5
	.01993343	.02918630	.01638879	.03305418	.03476511
3	.09189169	.05948063	.04130048	.03047976	.03405569
5	.04712604	.05809305	.01899849	.02719815	.01942838
6	.04330506	.03257466	.01552525	.02317004	.01959906
9.03937	.01739784	.01245952	.00734816	.00844773	.00791232
12	.00733569	.00653808	.00440352	.00535441	.00412823
14	.00596415	.00437456	.00309989	.00150324	.00170232
15	.00479619	.00304841	.00152852	.00149231	.00213590
18	.00067289	.00049988	.00046451	.00046815	.00055982

INCHES	6	7	8	9	10
	.06667893	.05833585	.06196196	.08686879	.33380082
3	.07423152	.08025209	.10594132	.09209499	.42510453
5	.03146287	.03056406	.04869120	.06336798	.24045766
6	.02347394	.03113182	.03599873	.03508542	.17446189
9.03937	.01389659	.01281886	.01702917	.02042164	.07310481
12	.00536089	.00628279	.00690756	.00933182	.03277980
14	.00280597	.00364061	.00376799	.00443987	.01866608
15	.00229236	.00334370	.00280490	.00420022	.01394311
18	.00061013	.00120839	.00113685	.00170202	.00612655

SCATTERED FLUX TRANS. PER NT. IN EGY. GRPS. VS. THICKNESS

INCHES	1	2	3	4	5
3	.02553319	.01305021	.01719199	.01066306	.01525301
5	.01161536	.01967860	.00966440	.01547311	.00937847
6	.01148390	.01086533	.00435763	.01059001	.00776752
9.03937	.00532332	.00301883	.00287074	.00472394	.00490099
12	.00208193	.00187154	.00151272	.00289041	.00151546
14	.00212675	.00171458	.00199387	.00064648	.00064590
15	.00161799	.00132267	.00076546	.00063446	.00125482
18	.00067289	.00049988	.00046451	.00046815	.00055982

INCHES	6	7	8	9	10
3	.03324483	.03664026	.07234006	.06927494	.37065458
5	.01299623	.01083370	.03173284	.05044726	.22870356
6	.01376217	.01766399	.02644863	.03030319	.16374912
9.03937	.00621380	.00708873	.01265275	.01656595	.06963469
12	.00336582	.00419947	.00528612	.00712564	.03131814
14	.00182512	.00252719	.00297232	.00379403	.01769174
15	.00114713	.00244168	.00220998	.00344242	.01340623
18	.00061013	.00120839	.00113685	.00170202	.00612655

INCHES	TOTAL NO. TRANS./NT.	TOTAL FLUX TRANS./NT.	TOTAL DOSE TRANS./NT.	UNC.NO.FLUX TRANS./NT.	TTL.FLX/NT. REGION BDS.
	1.00000000	2.92380562	20.46663937	2.92380562	3.61226932
3	.44199999	.98546476	5.82393037	.32161862	1.35645132
5	.24899999	.47361867	2.64219267	.07309517	.65848302
6	.19024993	.33207716	1.80535574	.03508567	.46941154
9.03937	.08474997	.13591755	.70988924	.00292383	.19376045
12	.04043745	.06116724	.31204063		.08842278
14	.02462497	.03593799	.17568731		.04996469
15	.01926532	.02824285	.13838108		.03958563
18	.00921079	.01344920	.06528004		.01344920

RUN NUMBER	HISTORIES	ENERGY SET	ANGLE SET	SLANT MFP
54-S	1000	2	2540	13.2364477

INC. ENERGY	COS. THETA	CUTOFF EGY	INC.FLX/NT	INC.DSE/NT
14.0000000	.3420200	.0000101	2.9238056	20.4666392

SLAB CONFIGURATION **WATER**

REGION THICKNESSES (CENTIMETERS)

7.6200	5.0800	2.5400	7.7200	7.5200	5.0800
2.5400	7.6200				

NUMBER OF SCATTERED NEUTRONS VS. ENERGY

ENERGY GROUPS	NO. TRAN. FACTOR	NO. FLUX TRAN.FACTOR	DOSE TRAN. FACTOR	NO. REFL. FACTOR	NO.FLX.REFL FACTOR	DOSE REFL. FACTOR
1	.0003906	.0002446	.0000224	.0126250	.0068176	.0006233
2	.0002891	.0001705	.0000144	.0187500	.0099823	.0008414
3	.0002422	.0001562	.0000181	.0080000	.0056053	.0006486
4	.0002578	.0001761	.0000327	.0150000	.0113052	.0020995
5	.0003438	.0002030	.0000580	.0160625	.0118904	.0033972
6	.0003906	.0002301	.0001019	.0285625	.0228055	.0100996
7	.0007422	.0004462	.0002550	.0313750	.0199520	.0114012
8	.0007578	.0003999	.0002457	.0365000	.0211922	.0130181
9	.0012109	.0006099	.0004443	.0365000	.0297109	.0216465
10	.0045859	.0021302	.0020694	.0968281	.1141666	.1109047

NUMBER OF SCATTERED NEUTRONS VS. ANGLE

ANGULAR SECTORS	NO. TRAN. FACTOR	NO. TRAN. FACT/STER	DOSE TRAN. FACT/STER	NO. REFL. FACTOR	NO. REFL. FACT/STER	DOSE REFL. FACT/STER
1	.0010859	.0041480	.0010728	.0153203	.0585191	.0101794
2	.0012500	.0047746	.0013544	.0146953	.0561318	.0080576
3	.0014062	.0044762	.0013014	.0242500	.0771900	.0142252
4	.0010625	.0033821	.0010297	.0140625	.0447622	.0099155
5	.0008906	.0028350	.0009421	.0130000	.0413802	.0096091
6	.0006797	.0021635	.0007006	.0145000	.0461548	.0091743
7	.0006172	.0019645	.0007124	.0272500	.0867393	.0263679
8	.0007656	.0014622	.0005363	.0403125	.0769910	.0267175
9	.0005078	.0009698	.0004204	.0297500	.0568182	.0221481
10	.0003203	.0006117	.0002566	.0215625	.0411812	.0192646
11	.0002500	.0004775	.0002131	.0250000	.0477464	.0275783
12	.0003750	.0001790	.0001945	.0605000	.0288866	.0468029

(S+U) NO. TRAN.FACT.	(S+U) DOSE TRAN. FACT.	UNSCAT. NO. FACTOR	SCAT. NO. TRAN. FACT.	SCAT.NO.FLX TRAN. FACT.	SCAT. DOSE TRAN. FACT.	SCAT. EGY. TRAN. FACT.
.0092109	.0032618		.0092109	.0047668	.0032618	.0036191

NUMBER REFL. FACT.	NO. FLUX REFL. FACT.	DOSE REFL. FACT.	ENERGY REFL. FACT.	ENERGY ABS. FACTOR	NUMBER ABS. FACTOR	NO. CUTOFF FACTOR
.3002031	.2534280	.1746801	.0862708	.9101063	.1865703	.5040156

	MEAN ENERGY SCAT.TR.NT.	MEAN ENERGY REFL. NT.
70.06802618	5.5007280	4.0232488

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F. J. Allen, A. Futterer and W. Wright

BRL Report No. 1204 June 1963

RDT & E Project No. 1A022601A088

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Neutron - Reflection
Neutron fluxes - Transmission
Neutrons - Water shielding

Detailed calculated results on neutron reflection and flux versus depth for water are given in the form of machine printouts. The angular and energy distributions of the reflected neutrons along with the energy-dependent and total flux at various depths are contained in tabular form on the printouts. Neutron number current, number flux and dose transmission as functions of thickness are also given in tabular form on the printouts.

A table of summary information on reflection is presented. This contains number current, number flux, dose and energy reflection factors as functions of incident energy and angle.

A few figures are presented to illustrate graphically the meaning of the various tabular results.

Some comparisons are made with results obtained by the National Bureau of Standards.

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Some comparisons are made with results obtained by the National Bureau of Standards.

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F. J. Allen, A. Futterer and W. Wright

BRL Report No. 1204 June 1963

RDT & E Project No. 1A022601A088

UNCLASSIFIED Report

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